

VASCULAR FLORAS OF SONOITA CREEK STATE NATURAL AREA AND SAN RAFAEL STATE PARK: ARIZONA'S FIRST NATURAL-AREA PARKS

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ABSTRACT

Sonoita Creek State Natural Area (SCSNA) and San Rafael State Park (SRSP) are the first two natural-area parks in Arizona established with funding provided by the Heritage Initiative. Both sites are in Santa Cruz County, and both have riparian communities that are rare in the arid Southwest. The upland vegetation of SCSNA is primarily semidesert grassland, while that of SRSP is Plains grassland. The flora of SCSNA includes 525 native species and 36 exotic species; that of SRSP includes 407 native species and 50 exotic species. Significant taxa include one new species, *Phacelia sonoitensis*, found at SCSNA. Taxa new to the flora of Arizona include *Pennellia robinsonii* (SRSP), *Rhynchosia minima* (SCSNA), and *Sibara virginica* (SRSP). *Lilaeopsis schaffneriana* ssp. *recurva*, an endangered species, was found at SRSP. The floras of both SCSNA and SRSP are strongly Apachian in their affinities. Species found at SCSNA but not at SRSP have relatively greater affinities with the flora of the Sonoran Floristic Province, while those found at SRSP but not SCSNA have a greater affinity with the Great Plains.

RESUMEN

Sonoita Creek State Natural Area (SCSNA) y San Rafael State Park (SRSP) son los primeros parques naturales establecidos con fondos aportados por la Iniciativa de Herencia. Ambos lugares están en el condado de Santa Cruz, y ambos tienen comunidades ribereñas que son raras en el Suroeste árido. La vegetación del altiplano de SCSNA es un pastizal semidesértico y la de SRSP es un pastizal de las Grandes Llanuras. La flora de SCSNA incluye 525 especies indígenas y 36 especies exóticas; la de SRSP incluye 407 especies indígenas y 50 especies exóticas. Entre las plantas significativas se incluye una especie nueva, *Phacelia sonoitensis*, encontrada en SCSNA. Entre las especies nuevas para la flora de Arizona se incluyen *Pennellia robinsonii* (de SRSP), *Rhynchosia minima* (de SCSNA), y *Sibara virginica* (de SRSP). *Lilaeopsis schaffneriana* ssp. *recurva*, una especie en peligro fue encontrada en SRSP. Las floras de SCSNA y SRSP son fuertemente Apachianas en sus afinidades florísticas. Las especies encontradas en SCSNA pero no en SRSP tienen una afinidad más grande con la flora de la provincia florística de Sonora y las especies encontradas en SRSP pero no en SCSNA tienen una afinidad más grande con las Grandes Llanuras.

INTRODUCTION

Arizona voters passed the Heritage Initiative by a nearly two-thirds margin in the November 1990 general election. The Heritage Initiative allocates funds from the state lottery to Arizona State Parks and Arizona Game and Fish Department. Part of the funds for Arizona State Parks are designated for the acquisi-

tion of “natural areas,” defined in the initiative as “parcels of land or water that contain examples of unique natural terrestrial or aquatic ecosystems, rare species of plants and animals, or outstanding geologic or hydrologic features.”

The first two acquisitions of large acreage for natural areas were both in Santa Cruz County, in southern Arizona, adjacent to the Mexican state of Sonora. The Sonoita Creek State Natural Area (SCSNA) in central Santa Cruz County was purchased in January 1994 for \$2.8 million. The natural area feature justifying this purchase was Sonoita Creek and its associated gallery forest. Sonoita Creek is one of the few perennial or near perennial streams in southern Arizona. The SCSNA purchase included 4.5 km of perennial stream, along with 1,990 ha of watershed north of the creek, including intermittent wetlands in the streams of Fresno Canyon and Coal Mine Canyon. Sonoita Creek, Fresno Canyon, and Coal Mine Canyon provide habitat for the Gila topminnow (*Poeciliopsis occidentalis occidentalis*), a federally listed endangered species of fish.

The second acquisition was San Rafael State Park (SRSP) in extreme southeastern Santa Cruz County. The 8,900 ha San Rafael Land and Cattle Company, which included the San Rafael de la Zanja land grant, was purchased by the Nature Conservancy in December 1998 for \$11 million. Arizona State Parks purchased the 1,440 ha of patented land along the Arizona-Sonora border along with a conservation easement on the entire ranch from the Nature Conservancy for \$8.6 million in January 1999. Natural-area values cited for this purchase included the unique grassland communities of the San Rafael Valley and significant riparian and wetland habitat along the upper Santa Cruz River and at Sharp Spring and Heron Spring. The wetlands provide critical habitat for at least two endangered species, the Huachuca water umbel (*Lilaeopsis schaffneriana* ssp. *recurva*) and Gila topminnow.

Most of the watershed adjacent to SCSNA is mapped as semidesert grassland (Brown 1994), which is an extensive area in Arizona and adjacent New Mexico, Sonora, and Chihuahua varying in physiognomy and species composition. Grasses generally are not the dominant lifeform; instead there is a complex mixture of shrubs, small trees, succulents, rosette plants, and subshrubs, with the exact physiognomy and species composition determined by drought, the seasonal distribution of precipitation, periodic freezes, soils, grazing history, and fire (Burgess 1995). Burgess suggested the term “Apacherian mixed shrub savanna” for this complex mosaic of subtropical, semiarid vegetation found above desert and below oak savannas. In contrast, the San Rafael Valley is mapped as “Plains grassland” (Brown 1994) and is dominated by perennial bunchgrasses and oak savannas with very few leguminous trees and shrubs, subshrubs, cacti, or rosette succulents.

The primary objective of this study was to inventory the floras of these two natural area parks. The study also provided an opportunity to address a

second objective, to contrast the floras of semidesert grassland and Plains grasslands in southeastern Arizona.

STUDY AREAS

Table 1 lists the latitude, longitude, area, elevational relief, mean annual precipitation, and mean January and July temperatures for both SCSNA and SRSP. Below are brief descriptions of the major physical features, soils, vegetation, and recent history of each park.

Sonoita Creek State Natural Area

The SCSNA is located along and north of Sonoita Creek downstream from Patagonia Lake State Park. It is an area of rugged terrain with moderate to steep, rocky slopes. Fresno Canyon has an intermittent stream and extends from north to south across the center of the park. Coal Mine Canyon is an east-west trending tributary to Fresno Canyon; the north-facing slopes of Coal Mine Canyon provide the most mesic terrestrial habitats within the park. A spring in the northeast corner of the park appears to be permanently wet. Elevations range from 1,080 m near the junction of Sonoita Creek and Fresno Canyon in the southwest corner of the park, to 1,310 m at a point near the northern boundary. Figure 1 includes a map of SCSNA showing the major drainages; representative upland and riparian habitats are shown in Figure 2.

The exposed surface of the uplands adjacent to Sonoita Creek is that of the relatively impervious Nogales Formation, formed by the deposition of fine to coarse-grained alluvial fan deposits derived from pre-existing volcanic rocks. These deposits have been subject to subsequent folding and erosion, creating a complex topography of incised drainages and slopes of all aspects.

Upland soils at SCSNA include: (1) Graham soils, mostly gravelly or cobbly loams on more gentle slopes at lower elevations in canyons, usually at the base of tuffaceous mountains; (2) Lampshire-Graham-Rock Outcrop associations, shallow, cobbly loams on steeper slopes, and (3) Rock Outcrop-Lithic Haplustolls, cobbly loams found in the dissected terrain in the southeast corner of the park (Richardson et al. 1979). The soils on the flood plain of Sonoita Creek are deep, well-drained sandy loams of the Comoro Association.

The gallery forest along Sonoita Creek is dominated by cottonwood (*Populus fremontii*), ash (*Fraxinus velutina*), willows (*Salix gooddingii* and *S. bonplandiana*), and walnut (*Juglans major*). On terraces adjacent to the gallery forest there is a dense bosque of mesquite (*Prosopis velutina*), hackberry (*Celtis reticulata*), elderberry (*Sambucus mexicana*), and one large colony of tree of heaven (*Ailanthus altissima*).

The vegetation of the upland portions of SCSNA is mostly semidesert grassland, with small sections of oak (*Quercus emoryi* and *Q. oblongifolia*) savanna, mostly confined to the north-facing slope of Coal Mine Canyon. Species composition of the semidesert grassland is highly variable. The most common plants

TABLE 1. Physical features of Sonoita Creek State Natural Area (SCSNA) and San Rafael State Park (SRSP). Climate data are from Sellers et al. (1985); representative stations used are Nogales 6 N (31° 26' N, 110° 55' W, 1160 m elev.) for SCSNA and San Rafael Ranch (31° 21' N, 110° 37' W, 1446 m elev.) for SRSP.

Feature	SCSNA	SRSP
Latitude	31° 30' N	31° 21' N
Longitude	110° 54' W	110° 36' W
Area (ha)	1990	1440
Minimum elevation (m)	1080	1395
Maximum elevation (m)	1310	1475
Elevational relief (m)	230	80
Mean annual precipitation (mm)	430	440
Mean January temperate (°C)	7.4	5.6
Mean July temperature (°C)	25.9	23.5

include mesquite, hopbush (*Dodonaea viscosa*), coral-bean (*Erythrina flabelliformis*), beargrass (*Nolina microcarpa*), sotol (*Dasyilirion wheeleri*), yucca (*Yucca thornberi*), shindagger (*Agave schottii*), acacia (*Acacia greggii*), mimosa (*Mimosa aculeaticarpa* var. *biuncifera*), and prickly pears (*Opuntia* spp.).

Prior to acquisition the site was primarily used for cattle grazing; trespass cattle were frequently observed during the floristic inventory. There is also evidence of historic small-scale mining activity on the site. The New Mexico and Arizona Railroad was constructed along Sonoita Creek during 1881–1882. Its bridges washed out on many occasions, and after a particularly devastating flood in 1929 the section of the line along Sonoita Creek was abandoned (Myrick 1975). Sections of the railroad bed are evident along most of the reach of the stream, usually at the edge of the floodplain.

San Rafael State Park

The SRSP is located in the San Rafael Valley, an isolated valley bounded on the west by the Patagonia Mountains, on the north by the Canelo Hills, and on the east by the Huachuca Mountains. SRSP occurs at the southern end of the valley adjacent to the US-Mexico international border. The San Rafael Valley is the headwaters of the Santa Cruz River, which runs north to south down the center of the valley. During the period of field work for this study the Santa Cruz River ran continuously where it crosses the SRSP, supporting a variety of wetland plant communities. Sharp Spring and Heron Spring are water courses flowing northeast to southwest into the Santa Cruz River; both have intermittent pools and support communities of wetland plants. Parker Canyon wash is a major drainage just entering SRSP in its southeastern corner. Figure 1 includes a map of SRSP showing the major drainages; representative upland and riparian habitats are shown in Figure 3.

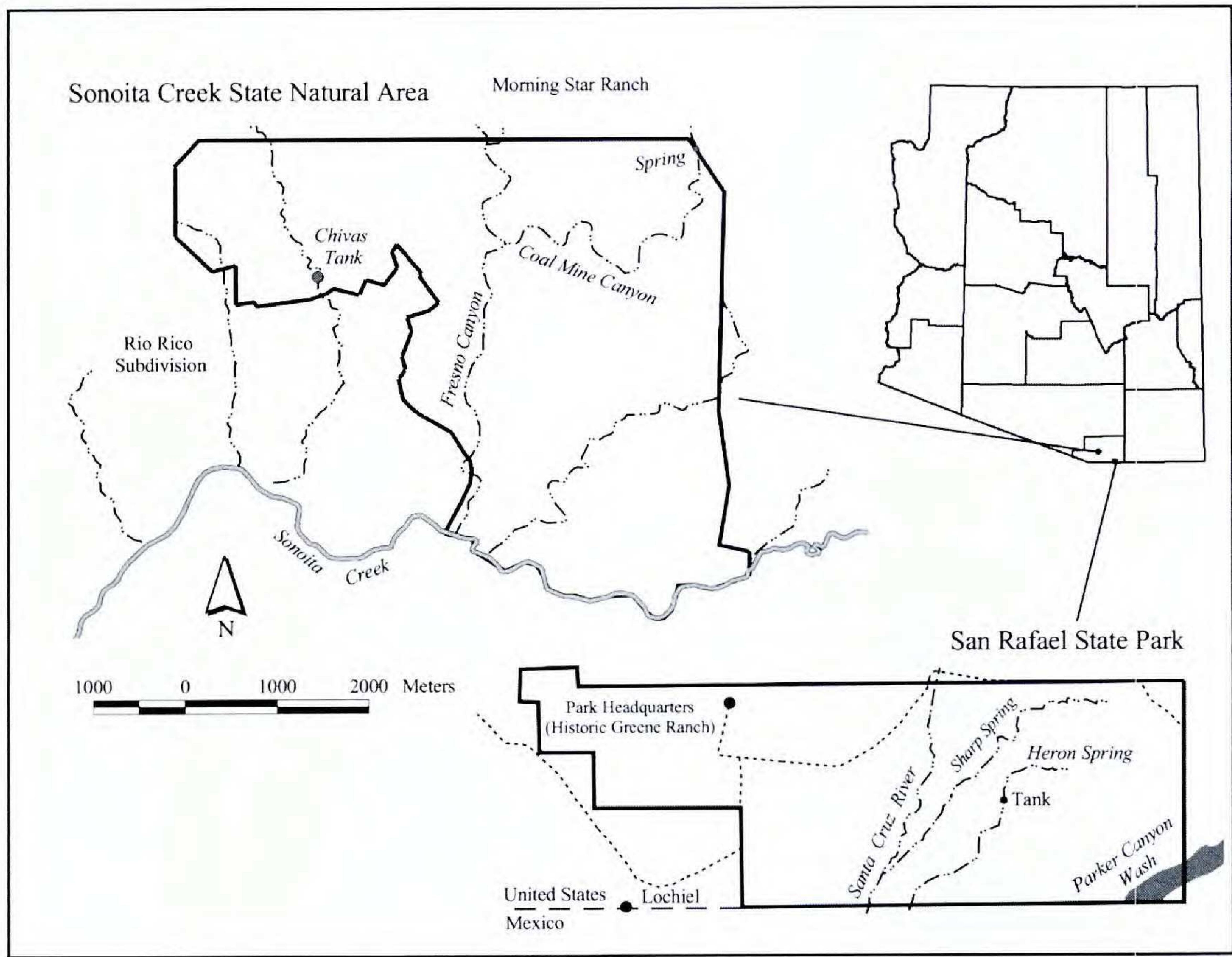


FIG. 1. Maps of Sonoita Creek State Natural Area, and San Rafael State Park, Santa Cruz County, Arizona.

Topography on the park consists mostly of low, gently sloping hills and shallow drainages. There are no bedrock outcrops. The Santa Cruz River is currently entrenched about 2 to 4 m within its floodplain, which averages about 0.5 km in width.

Soils along the floodplains of the Santa Cruz River, Sharp Spring, and Heron Spring are all mapped as Guest Soils, deep loams to clay loams (Richardson et al. 1979). The floodplain soils of Parker Canyon are gravelly sandy loams of the Grabe-Comoro complex. Most of the upland areas have gentle slopes with gravelly clay loams of the Bernardino-Hathaway Association, clay loams of the White House Association, or deep clay loams of the Pima Association. In the extreme southeast corner of SRSP, on the south side of Parker Canyon, there are calcareous gravelly sandy loams of the Hathaway Association on slopes of 20 to 50 percent steepness. The high clay content of most of the soils of the San Rafael Valley is probably associated with their resilience to high grazing pressure and resistance to invasion by shrubs and cacti.

The vegetation of the San Rafael Valley is primarily "Plains grassland", a true grassland dominated by grama grasses (*Bouteloua* spp.), wolftail (*Lycurus setosus*), cane bluestem (*Bothriochloa barbinodis*), Plains lovegrass (*Eragrostis*

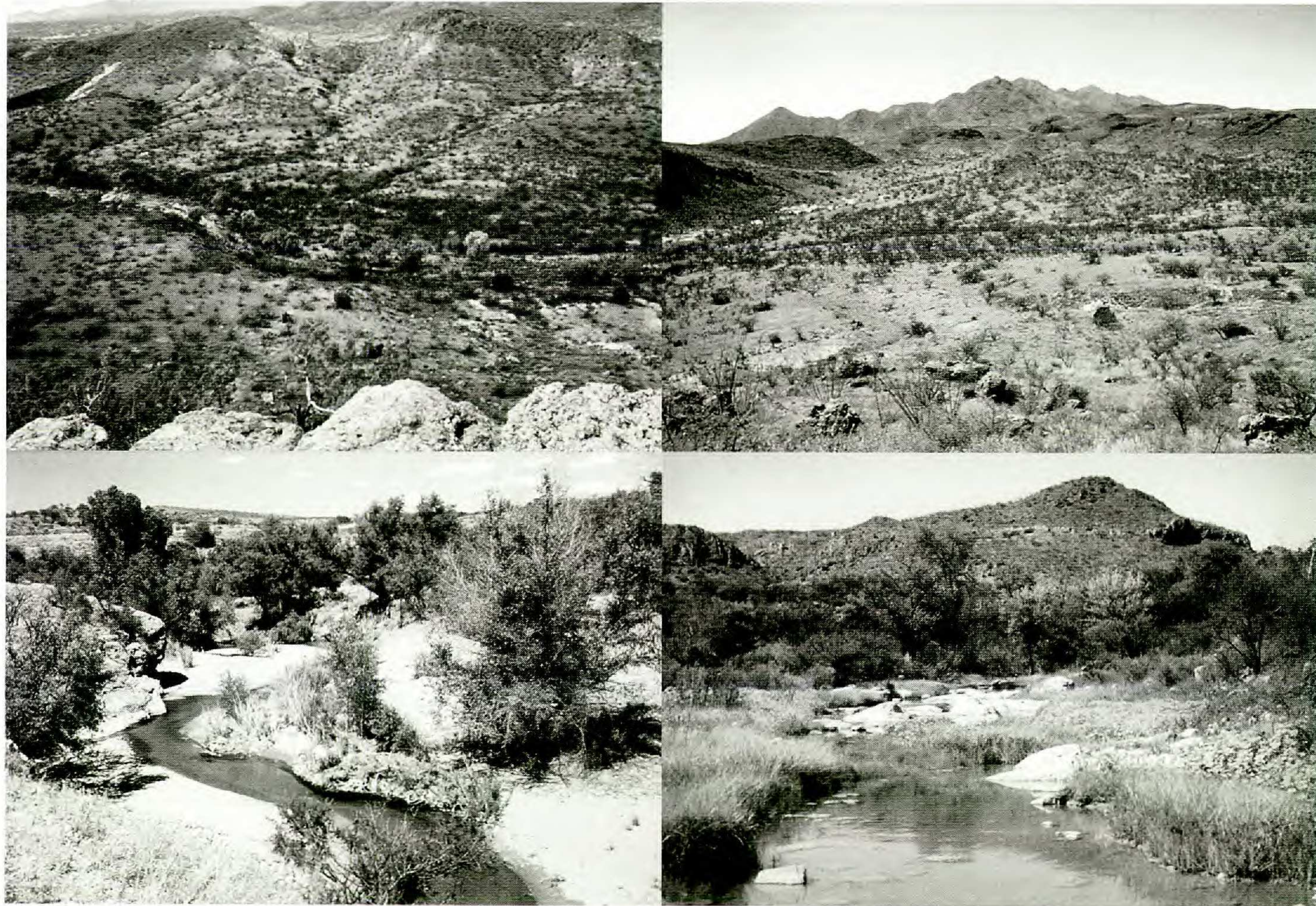


FIG. 2. Habitats at Sonoita Creek State Natural Area: semidesert grassland in Fresno Canyon, with ash trees (*Fraxinus velutina*) along stream and mesquites (*Prosopis velutina*), both on floodplain and uplands (upper left); semidesert grassland with abundant ocotillo (*Fouquieria splendens*) and mesquite (upper right); gallery forest of cottonwood (*Populus fremontii*) and willows (*Salix* spp.) along Sonoita Creek (lower left); and streamside communities in Fresno Canyon, dominated by flat sedges (*Cyperus* spp.) and spike rushes (*Eleocharis* spp.) (lower right).



FIG. 3. Habitats at San Rafael State Park: view of open grasslands of San Rafael Valley and SRSP from south side of Parker Canyon (upper left); Emory oak (*Quercus emoryi*) savanna (upper right); channel of Santa Cruz River, with dense rush (mostly *Juncus mexicanus*) and spike rush (*Eleocharis* spp.) adjacent to water, sacaton (*Sporobolus wrightii*), cottonwood, and willow on floodplain (lower left); and a portion of Sharp Spring with willows and *Bidens laevis* (lower right).

intermedia), Texas bluestem (*Schizachyrium cirratum*), spider grass (*Aristida ternipes*), and other perennial bunchgrasses. Broadleaf annual and perennial herbs are an important component of the vegetation, particularly species in the families Euphorbiaceae, Asteraceae, and Fabaceae. The abundance of non-grass components in the vegetation is likely due to intensive grazing in the last 150 years. Oak savannas are present in the northwestern portion of the park and along Parker Canyon wash.

There is an intermittent gallery forest along the Santa Cruz River, Sharp Spring, and Heron Spring composed mostly of cottonwood and willows (*Salix gooddingii*, *S. lasiolepis*, and *S. exilifolia*). Herbaceous vegetation along the Santa Cruz River is dominated by spikerushes (*Eleocharis* spp.) and true rushes (*Juncus* spp.). Grazing pressure in the wetlands along the Santa Cruz River, Sharp Spring, and Heron Spring appears to have been particularly heavy, and exotic species are locally abundant in these areas, particularly sweet clover (*Melilotus officinalis*), meadow fescue (*Festuca arundinacea*), and Kentucky blue grass (*Poa pratensis*). Most of the floodplain of the Santa Cruz River within SRSP was not cultivated, and this area contains an excellent example of sacaton (*Sporobolus wrightii*) grassland, a community that has disappeared from much of the Southwest due to lowering of water tables.

Hadley and Sheridan (1995) provided a detailed history of land use in the San Rafael Valley. The last 150 years have been a period of relatively intense cattle grazing. There have been numerous homesteads in the valley, and agriculture has been practiced on a limited scale on the Santa Cruz River floodplain. The San Rafael Ranch was the location for the filming of many movie westerns, including the musical *Oklahoma!*

METHODS

Field work was conducted from August, 2000, through November 2001. During the 17 months of the project a total of 62 trips were made, 34 to SCSNA and 28 to SRSP. The field work thus covered three growing seasons: the summer/fall of 2000 and 2001 and the spring of 2001. The winter of 2000-2001 was unusually wet, resulting in very productive collecting during spring of 2001. Since there was no direct vehicle access to the SCSNA, all of the collecting had to be done during long day-hikes. Plants were collected, mostly in duplicate, in plastic bags during the day and pressed either that same evening, or the following morning after allowing collections to rehydrate somewhat. At SRSP most collections could be made on shorter hikes and pressed while still in good condition.

A total of 1,286 specimens were collected, 689 from SCSNA and 597 from SRSP. Many trees, shrubs, and rosette succulents were not collected; rather their presence and distributions were recorded in field notes. Most cacti were identified in the field using Benson (1969). A few species were included in the flora based on earlier collections from the study areas in the herbarium at the

University of Arizona. Rick Gagnon, the ranger at SCSNA during the period of the field work, took hundreds of photographs of plants he encountered on that study site; a few species not encountered during the collection trips but photographed by Gagnon are also included in the flora.

In 2004, 1,064 ha adjacent to SCSNA, located to the northeast and upstream along the Coal Mine Creek watershed, was added to the park. This area, which is even more remote than the original acquisition, is likely to have additional taxa not found during the field work for this study.

Geographic affinities of the floras of SCSNA and SRSP were examined by mapping the percentage of native taxa found in 245 local floras from Mexico, the United States, and Canada, using a database compiled by the author. Such maps use contours (isolines of percentage overlap) to show in a concise way what proportion of the flora extends into neighboring geographic regions. Three maps were prepared: one for native species occurring in the floras of both SCSNA and SRSP, one for those occurring only at SCSNA, and one for those occurring only at SRSP.

RESULTS AND DISCUSSION

Floristic Summary

The total known flora for SCSNA is 561 species, 525 native and 36 exotic. For SRSP the total flora is 457 species, 407 native and 50 exotic. The percentage of exotic species in the flora of SCSNA is 6.4%, a typical value for floras in southeastern Arizona, but low for local floras in most other regions of the United States. Exotics at SRSP constitute 10.9% of the total flora. There are 277 species in common to the two sites, 252 native and 25 exotic. The floristic similarity (Otsuka's Index, based on native species only) between SCSNA and SRSP is 54.5%, a somewhat low value for two areas in such close proximity (Fig. 1), indicating significant differences in the floras of semidesert and Plains grassland communities.

There are 97 families and 354 genera in the flora of SCSNA, and 84 families and 274 genera at SRSP. The largest families in the two floras are listed in Table 2. The Asteraceae (composites), Poaceae (grasses), and Fabaceae (legumes) dominate in both floras, as they do in floras from most areas of the western United States. Even though the flora of SCSNA is larger than that of SRSP by more than 100 species, the number of Asteraceae are about the same and the number of Poaceae is actually larger at SRSP. The Poaceae also has the largest number of exotic species. The Euphorbiaceae is the fourth largest family at each site. One notable difference is the large number of Pteridaceae (ferns) at SCSNA, a family that is completely absent from the flora of SRSP. Ferns in the Pteridaceae generally grow on rock outcrops or rocky slopes, a habitat not found at SRSP. The largest genera in the flora at SCSNA are *Chamaesyce* (Euphorbiaceae, 11 species), *Bouteloua* (Poaceae, 8 species), *Cyperus* (Cyperaceae, 8 species), *Dalea*

TABLE 2. Largest families in the floras of Sonoita Creek State Natural Area and San Rafael State Park: numbers of genera (G), native species (NS), exotic species (ES), and total species (TS).

Sonoita Creek State Natural Area					San Rafael State Park				
Family	G	NS	ES	TS	Family	G	NS	ES	TS
Asteraceae	59	84	3	87	Asteraceae	46	79	3	82
Poaceae	35	50	16	66	Poaceae	38	57	18	75
Fabaceae	31	51	2	53	Fabaceae	25	35	8	43
Euphorbiaceae	11	23	0	23	Euphorbiaceae	6	21	0	21
Scrophulariaceae	11	15	2	17	Brassicaceae	10	9	4	13
Brassicaceae	13	13	3	16	Solanaceae	6	11	0	11
Pteridaceae	7	13	0	13	Scrophulariaceae	7	9	1	10
Cactaceae	5	12	0	12	Cyperaceae	4	10	0	10
Cyperaceae	4	12	0	12	Chenopodiaceae	4	7	1	8
Convolvulaceae	3	11	0	11	Convolvulaceae	3	8	0	8
Malvaceae	8	11	0	11	Malvaceae	5	7	1	8
Solanaceae	7	10	1	11	Onagraceae	3	8	0	8

(Fabaceae, 8 species), *Boerhavia* (Nyctaginaceae, 7 species), *Ipomoea* (Convolvulaceae, 7 species), *Brickellia* (Asteraceae, 6 species), and *Phacelia* (Hydrophyllaceae, 6 species). At SRSP, the largest genera are *Chamaesyce* (9 species), *Bouteloua* (9 species), *Dalea* (7 species), *Asclepias* (Asclepiadaceae, 5 species), *Euphorbia* s.s. (Euphorbiaceae, 5 species), *Ipomoea* (5 species), *Machaeranthera* (Asteraceae, 5 species), and *Oenothera* (Onagraceae, 5 species).

The percentage of the total flora (natives + exotics) that are species found only in aquatic and wetland habitats is 13.6% for SCSNA and 21.8% for SRSP. For those species found at SRSP but not at SCSNA the percentage of wetland plants is 34.8%, indicating the relatively greater importance of wetland habitats at SRSP.

Significant Taxa

Ananthus squamulosa (A. Gray) King & H.E. Robinson (synonym *Brickellia squamulosa* A. Gray) (Asteraceae).—There is a relatively large population of this plant in Parker Canyon at SRSP. It is known in Arizona from only a few sites in the southeastern part of the state.

Argyroschisma incana (C. Presl) Windham (Pteridaceae).—This is a rare fern in the United States, known only from a limited area in southern Arizona. It is uncommon on rock outcrops at SCSNA.

Cirsium grahamii A. Gray (Asteraceae).—This large, attractive, uncommon thistle is restricted to ciénega habitats. It occurs in the Heron Spring drainage on SRSP.

Heterotheca rutteri (Rothrock) Shinnars (Asteraceae).—This is a rare grassland plant with a narrow range in southeastern Arizona. It is locally abundant at many localities in grasslands at SRSP.

Lilaeopsis schaffneriana (Schltdl.) Coulter & Rose ssp. *recurva* (A.W. Hill) Affolter (Apiaceae).—This is a listed endangered species under the Endangered Species Act, the only such species so far documented from the floras of the two sites. It was previously recorded from Sharp Spring at SRSP. This species was not found at either Sharp or Heron springs, but a few populations along the Santa Cruz River were found at SRSP.

Pennellia robinsonii Rollins (Brassicaceae).—This species is new to the flora of Arizona and the United States. It differs from *P. micrantha* (A. Gray) Nieuwl., a woodland and forest species, in having shorter, wider siliques, dark purple sepals, and purplish-tinged petals (Rollins 1995). Rollins gives its range as restricted to the Mexican state of Chihuahua. The species is locally common in grasslands at SRSP.

Phacelia sonoitensis S.P. McLaughlin ined. (Hydrophyllaceae).—A previously unknown *Phacelia* was collected several times at SCSNA. The plant occurs on rock outcrops or on talus below rock outcrops; it was found at several widely scattered sites. It has a combination of characters that do not match any known *Phacelia* from the Southwest: pinnately compound leaves, narrowly spathulate sepals, and a capsule of several shallowly cymbiform seeds. A description of this proposed new taxon has been submitted to *Novon*.

Phyllanthus polygonoides Nutt. ex Spreng. (Euphorbiaceae).—This perennial herb is rare in Arizona, but is more common in Texas and Mexico. It is a rare plant at SCSNA in Fresno Canyon along the stream.

Potentilla wheeleri S. Watson (Rosaceae).—This species occurs at SRSP; it is known from relatively few locations in southeastern Arizona, all at much higher elevations in adjacent mountains or from rock walls in steep-sided mountain canyons. Its occurrence at such a low elevation is remarkable. It was common on a north-facing slope adjacent to Sharp Spring. Several other high-elevation taxa occurred at the same site, including *Thlaspi montana* var. *fendleri* and *Houstonia wrightii*.

Rhynchosia minima (L.) DC. (Fabaceae).—This is a new state record for Arizona. The species is common in northern Mexico and also occurs in the southeastern United States. It is rare at SCSNA, found once on a rocky slope above Coal Mine Canyon and once in Fresno Canyon.

Sibara virginica (Brassicaceae).—This is a new record for the state of Arizona; it was found on two occasions in dense sacaton stands adjacent to the Santa Cruz River in SRSP. *Sibara virginica* is a rather widespread species, and its status here as a native or exotic is not clear.

Tephrosia vicioides Schlect. (Fabaceae).—This perennial herb was previously overlooked in the flora of Arizona, and is only known from the state from just a few collections. It was found in SCSNA at a single location on loose, rocky soil in the center of the park.

Tillandsia recurvata (L.) L. (Bromeliaceae).—The epiphytic species is com-

mon in the tropics but is known in Arizona from just a few sites. It is locally common on junipers in narrow tributary canyons to Sonoita Creek at SCSNA.

Floristic Geography

Patterns of floristic affinity are illustrated by three maps (Fig. 4–6). These maps show the percentage of native species found in both parks (Fig. 4), found only at SCSNA (Fig. 5), and found only at SRSP (Fig. 6), which are present in each of 245 other local floras from North America. The average range size (number of local floras out of the sample of 245 local floras) for native species occurring in both SCSNA and SRSP is 26.2 floras. These taxa extend throughout the Apachian floristic area (McLaughlin 1989, 1992) of southeastern Arizona, northwestern Sonora, southeastern New Mexico, and northwestern Chihuahua, with clear affinities extending southeast into west Texas (Fig. 4). Ruderal species, wetland plants, and perennial grasses constitute a large proportion of the most widespread native species common to both parks.

Those native species recorded only for SCSNA are more narrowly distributed (mean range size = 15.6 floras) than those occurring in both parks. The average range size for the native species recorded only from SRSP is 25.2 local floras, similar to that for those species recorded for both floras. The higher proportion of wetland taxa among the native species found only at SRSP accounts in part for the greater average range size of these taxa. While the species found only at SCSNA are mostly Apachian in distribution, a relatively larger proportion extend into the Sonoran Floristic Province (McLaughlin 1992) of western Arizona, southeastern California, and throughout Sonora (Fig. 5). A much smaller percentage of those species recorded only from SRSP extend into the Sonoran Floristic Province, but a higher percentage extend southeast into the Madrean mixed-grass prairies (Bock & Bock 2000) of Chihuahua and Durango and east and northeast into the short-grass plains of eastern New Mexico and Colorado (Fig. 6).

The climates of SCSNA and SRSP are not that different (Table 1); in both areas precipitation occurring during the summer monsoon (July to September) accounts for 61% of the mean annual precipitation. The small differences in temperature and precipitation, however, are consistent with the relatively higher affinity of the warmer, drier SCSNA with the Sonoran Floristic Province, and for the higher affinity of the cooler, somewhat moister SRSP with the short-grass plains. The coarser textured, shallower soils of SCSNA may favor desert species while the deep clay soils of SRSP may favor species from the Great Plains. The floras of both parks, however, are overwhelmingly Apachian in their species composition.

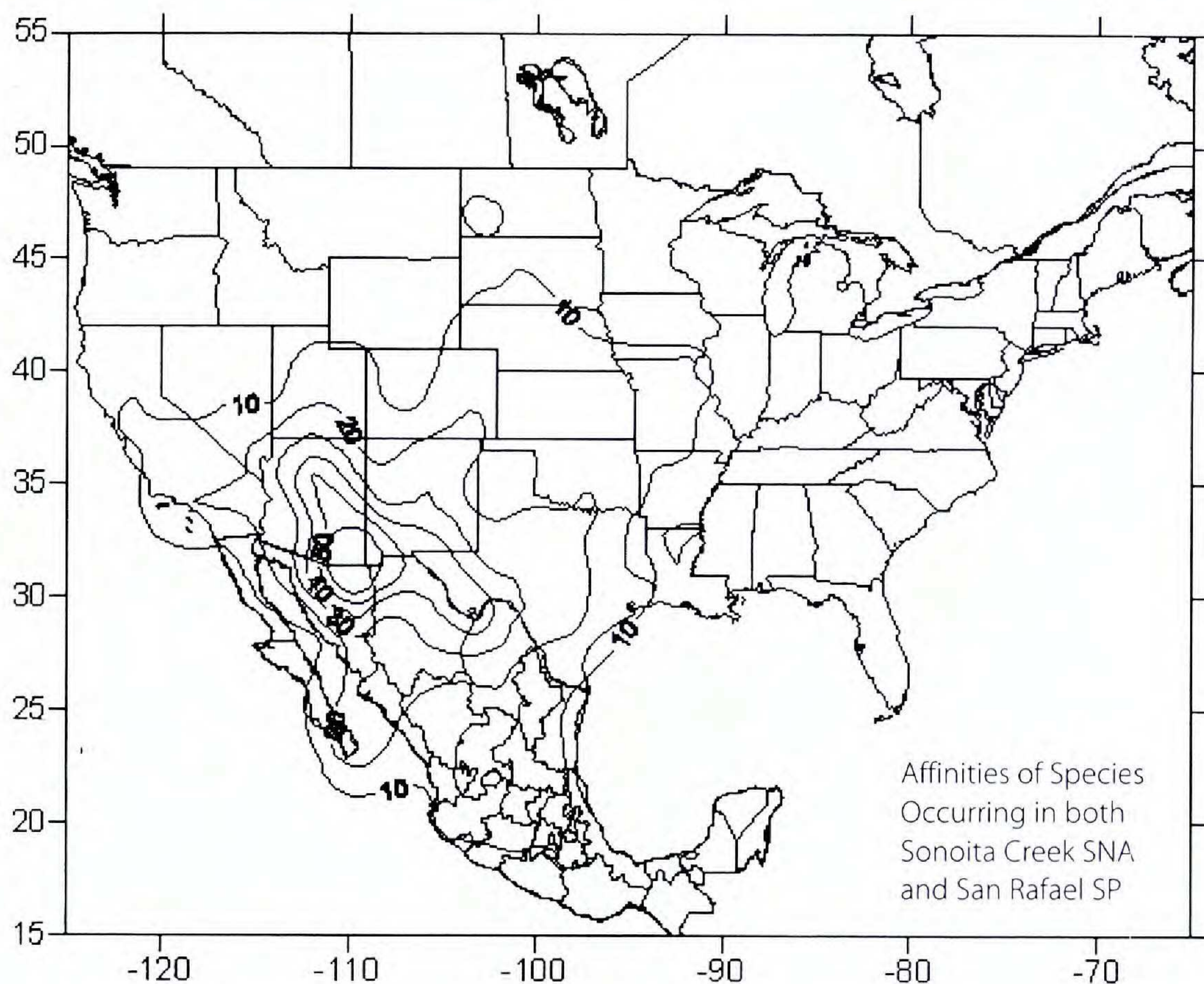


FIG. 4. Affinities of native species occurring in both Sonoita Creek State Natural Area and San Rafael State Park. Isolines represent the percentage of species in the floras of both parks that are found in other local floras from North America, based on a sample of 245 local floras.

ANNOTATED CHECKLIST

Nomenclature in the following checklist, with few exceptions, is based on Kartesz (1999). Nomenclature in Cactaceae follows Parfitt and Gibson (2003). Synonyms, when given, are for taxa listed under a different name in *Arizona Flora* (Kearney & Peebles 1960). Exotic species are preceded by an asterisk (*). Annotations for each species include: common name(s) when available, habit, collection numbers, and abundance and distribution for each study area (SC = Sonoita Creek State Natural Area; SR = San Rafael State Park). Spanish common names are those encountered in northeastern Sonora, as listed by White (1948). Common names and habits are not repeated for varieties with the same data. Voucher specimens were deposited at the University of Arizona Herbarium (ARIZ); duplicates were used to establish field herbaria for the two state parks. Several species, including most cacti and succulents, many trees and shrubs, and species not found in flower, were identified in the field and not vouchered. Unless otherwise indicated, collection numbers are those of the author.

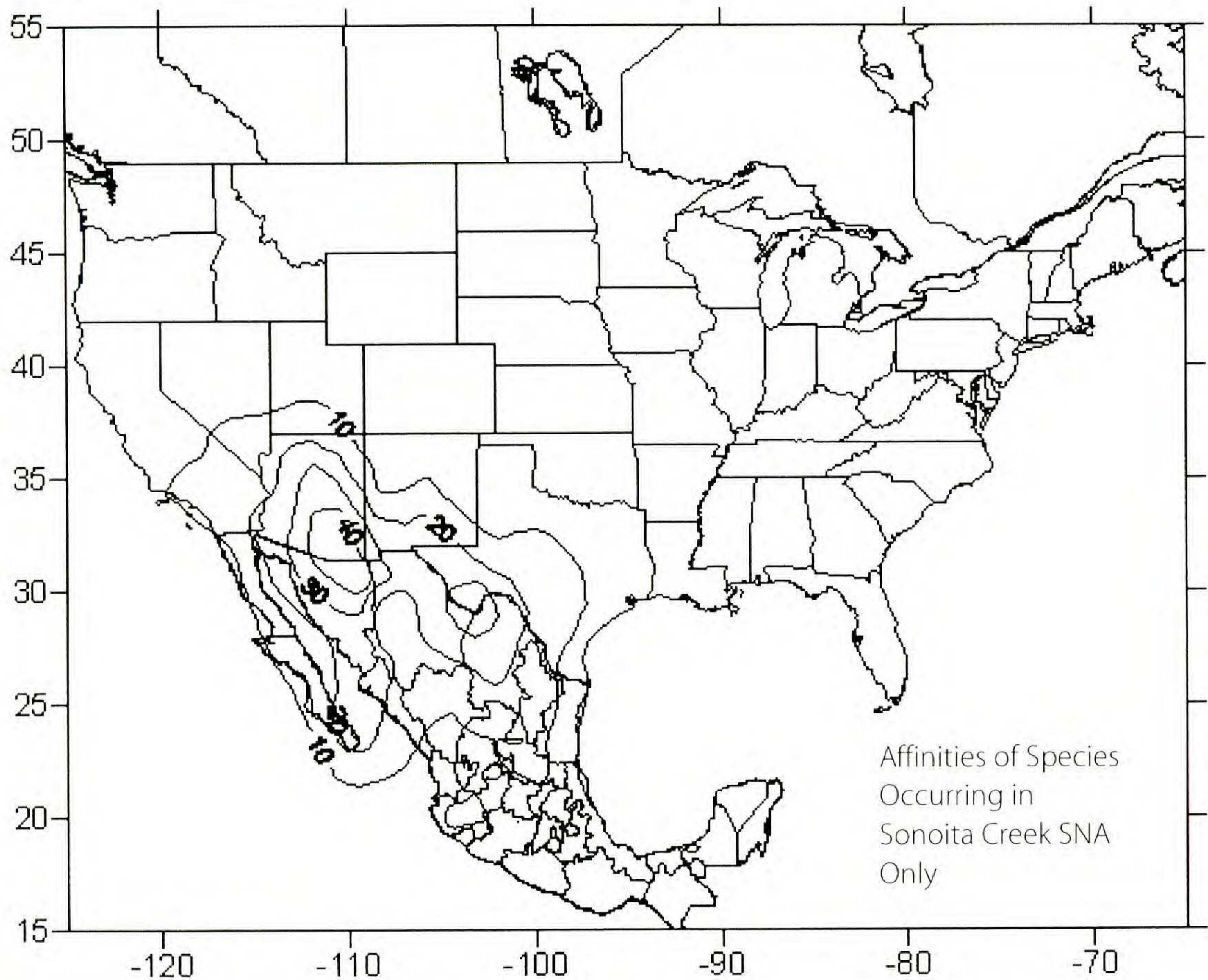


FIG. 5. Affinities of native species recorded only from Sonoita Creek State Natural Area (not found in San Rafael State Park). Isolines represent the percentage of species recorded only from SCSNA found in other local floras from North America, based on a sample of 245 local floras.

LYCOPODIOPHYTA

Selaginellaceae

Selaginella rupincola Underwood. Spike moss; herbaceous perennial. SC: 8357; abundant on canyon slopes.

EQUISETOPHYTA

Equisetaceae

Equisetum × *ferrissii* Clute (pro sp.). Scouring rush; herbaceous perennial. SR: 8268; occasional, Santa Cruz River bottom.

Equisetum laevigatum A. Braun. Scouring rush; herbaceous perennial. SC: 8745; uncommon along Sonoita Creek. SR: 9432; common, Santa Cruz River bottom.

POLYPODIOPHYTA

Azollaceae

Azolla mexicana C. Presl. Water fern; floating aquatic. SC: 9330; rare in pools along Sonoita Creek. SR: 8784, uncommon, Sharp Spring.

Marsileaceae

Marsilea mollis B. L. Robinson & Fernald. Pepperwort; herbaceous perennial. SR: *Niles 698* (ARIZ); collected last in 1965 from a pool adjacent to the Santa Cruz River.

Marsilea vestita Hook. & Grev. [*M. mucronata* A. Br.]. Clover fern; herbaceous perennial. SC: 8498, 8532; uncommon along streams in Fresno and Coal Mine Canyons. SR: *Van Devender 84-443* (ARIZ); collected last in 1984 from a pool adjacent to the Santa Cruz River.

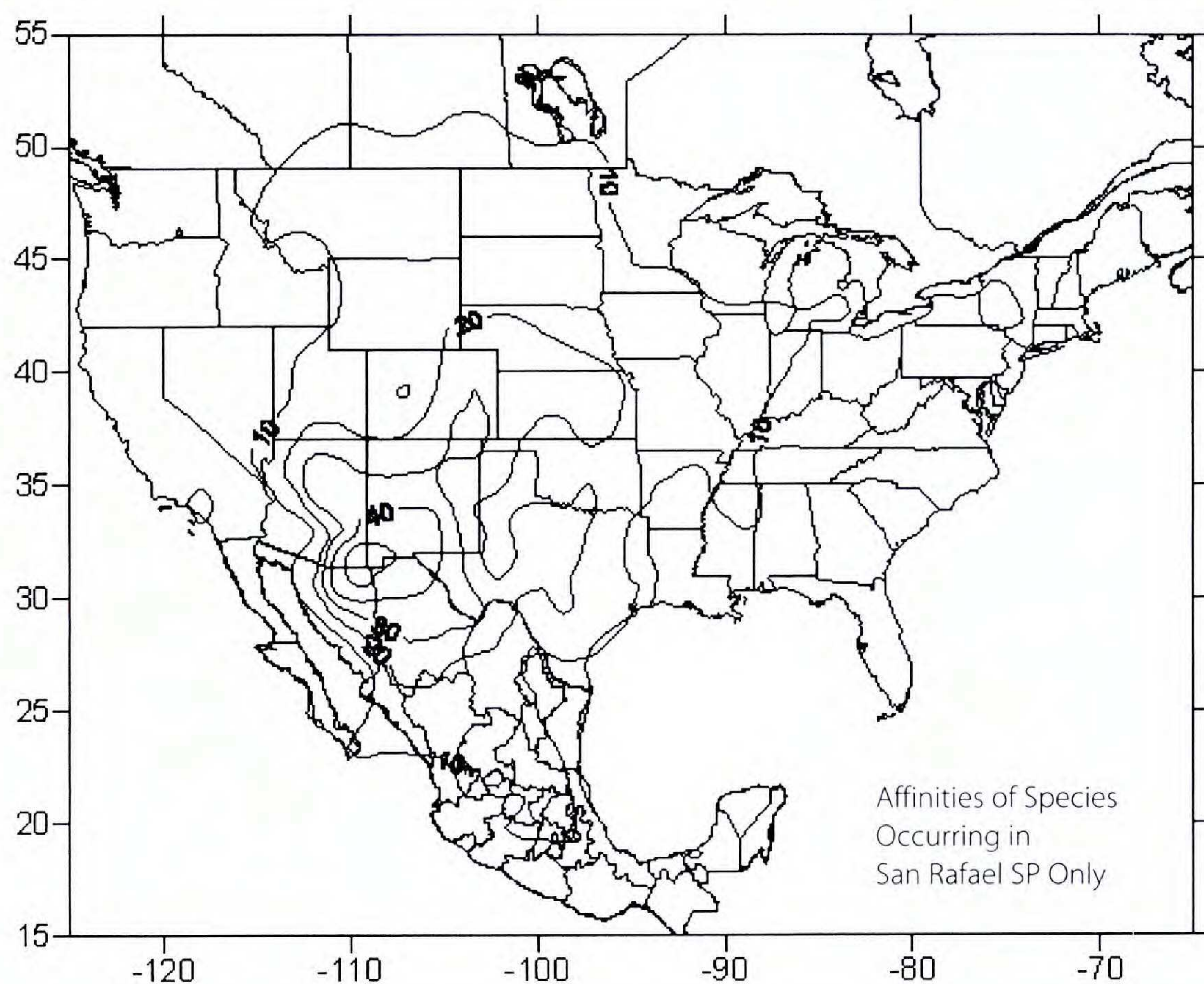


FIG. 6. Affinities of native species recorded only from San Rafael State Park (not found in Sonoita Creek State Natural Area). Isolines represent the percentage of species recorded only from SRSP found in other local floras from North America, based on a sample of 245 local floras. Compare with Fig. 5.

Pteridaceae

Adiantum capillus-veneris L. Maidenhair fern; herbaceous perennial. SC: 9419; below rock overhangs, west park boundary on south side of Sonoita Creek.

Argyrochosma incana (K. Presl) Windham. Cloak fern; herbaceous perennial. SC: 8401; uncommon on rock walls.

Argyrochosma limitanea (Maxon) Windham ssp. *limitanea* [*Pellaea limitanea* (Maxon) Morton]. Cloak fern; herbaceous perennial. SC: 8806; uncommon on rock walls.

Astrolepis integerrima (Hook.) D.M. Benham & Windham [*Notholaena sinuata* (Lagasca) Kaulf. var. *integerrima* Hook.]. *Canahuala*; herbaceous perennial. SC: 8360, 8454; uncommon on rock walls.

Astrolepis sinuata (Lagasca ex Swartz) D.M. Benham & Windham ssp. *sinuata* [*Notholaena sinuata* (Lagasca) Kaulf. var. *sinuata*]. *Canahuala*; herbaceous perennial. SC: 8406; common on rocky slopes and rock walls.

Bommeria hispida (Mett. ex Kuhn) Underwood. Hairy bommeria; herbaceous perennial. SC: 8400; uncommon, mostly below oaks.

Cheilanthes eatonii Baker. Lip fern; herbaceous perennial. SC: 9677; rare, canyon walls.

Cheilanthes lindheimeri Hook. Fairy swords; herbaceous perennial. SC: 8380; common on rocky slopes and rock walls.

Cheilanthes wrightii Hook. Wright's lip fern; herbaceous perennial. SC: 8416, 8820, 8871; common on rocky slopes.

Notholaena grayi Davenport. Cloak fern; herba-

ceous perennial. SC: 8351; uncommon on rock walls.

Notholaena standleyi Maxon. Cloak fern; herbaceous perennial. SC: 8410, 8822; uncommon on rock walls.

Pellaea intermedia Mett. ex Kuhn. Cliff brake; herbaceous perennial. SC: 6846, 9217; rare on rock walls.

Pellaea wrightiana Hook. Cliff brake; herbaceous perennial. SC: 8818, 8933, 9217; rare on rock walls.

PINOPHYTA

Cupressaceae

Juniperus coahuilensis (Martinez) Gausson ex R.P. Adams [*J. monosperma* (Torr.) Little *sensu* Kearney and Peebles (1960), in part]. Juniper, *huata*, *táscate*, *táscale*; small tree. SC: 9408; common in canyons, uplands.

Juniperus deppeana Steud. Alligator juniper, *huata*, *táscale*, *táscate*; small tree. SR: 9392; uncommon, grasslands east of Santa Cruz River.

MAGNOLIOPHYTA: MAGNOLIOPSIDA

Acanthaceae

Anisacanthus thurberi (Torr.) A. Gray. Desert honeysuckle; large shrub. SC: 9280; common in canyons.

Carlowrightia arizonica A. Gray. Herbaceous perennial. SC: 9291, 9297; uncommon in mesquite grasslands.

Dicliptera resupinata (Vahl) Juss. Herbaceous perennial. SC: 8734; common in shade of gallery forests along Sonoita Creek.

Dyschoriste decumbens (A. Gray) Kuntze. Herbaceous perennial. SR: 8287; common, grasslands.

Elytraria imbricata (Vahl) Pers. Purple scaly stem, *cordoncillo*; herbaceous perennial. SC: 8369; common, canyons, rocky slopes.

Tetramerium nervosum Nees [*T. hispidum* Nees]. Herbaceous perennial. SC: 8348, 9232; uncommon, mostly in canyon bottoms.

Aizoaceae

Trianthema portulacastrum L. Horse purslane; summer annual. SC: 8419; occasional in overgrazed sites. SR: 8791; uncommon, sacaton stands.

Amaranthaceae

Alternanthera pungens Kunth [*A. repens* (L.) Kuntze]. Khakiweed; mat-forming herbaceous perennial. SR: 8712; occasional, grasslands.

Amaranthus palmeri S. Watson. Palmer's amaranth, *bledo*, *quelite*; summer annual. SC: 8352, 8453; common, canyons, overgrazed sites. SR: 8253, 8270; common, mostly along drainages.

Amaranthus torreyi (A. Gray) Benth. ex S. Watson. Torr.'s amaranth; summer annual. SC: 8392, 8422; uncommon, mostly in canyons.

Froelichia arizonica Thornber ex Standley. Snake cotton; herbaceous perennial. SC: 8809; rare, found once in Fresno Canyon.

Gomphrena caespitosa Torr. Globe amaranth; herbaceous perennial. SC: 9225B; occasional, grasslands. SR: 9243; common, grasslands.

Gomphrena nitida Rothrock. Globe amaranth; herbaceous perennial. SC: 8481; common, grasslands. SR: 8283, 8310; occasional, grasslands.

Gomphrena sonora Torr. Globe amaranth; herbaceous perennial. SC: 8370; common, grasslands.

Guilleminea densa (Humb. & Bonpl. ex Willd.) Moq. [*Brayulinea densa* (Humb. & Bonpl.) Small]. Herbaceous perennial. SC: 8415; occasional, grasslands. SR: 8569; common, grasslands.

Iresine heterophylla Standley. Bloodleaf; herbaceous perennial. SC: 8751; rare, canyons.

Anacardiaceae

Rhus trilobata Nutt. var. *anisophylla* (Greene) Jepson. Sumac, squawbush, *lima*; shrub. SR: 9630; rare, oak woodland adjacent to Parker Canyon.

Rhus trilobata Nutt. var. *pilosissima* Engelm. Shrub. SC: 9209; uncommon, canyons.

Rhus virens Lindheimer ex A. Gray var. *choriophylla* (Wooton & Standley) L. Benson [*R. choriophylla* Wooton & Standley]. *Lima*; shrub. SC: rare, canyons.

Toxicodendron rydbergii (Small ex Rydberg) Greene [*Rhus radicans* L. var. *rydbergii* (Small) Rehder]. Poison ivy, *hiedra*; woody vine. SC: 9420; uncommon, canyons.

Apiaceae

Berula erecta (Huds.) Coville. Water parsnip; herbaceous perennial. SR: 8276; common, springs.

Bowlesia incana Ruiz & Pavón. Hairy bowlesia; winter annual. SC: 8875; abundant, especially below mesquites.

**Conium maculatum* L. Poison hemlock; biennial. SC: 9474; rare, along Sonoita Creek.

Daucus pusillus Michx. American carrot; winter annual. SC: 8926; common on rocky uplands.

Eryngium heterophyllum Engelm. Mexican thistle; herbaceous perennial. SR: 8315; occasional, grasslands.

Hydrocotyle ranunculoides L. f. Water pennywort; aquatic herbaceous perennial. SC: 8496; rare, pools in Fresno and Coal Mine Canyons. SR: 8787; occasional; Santa Cruz River bottom.

Lilaeopsis schaffneriana (Schltdl.) J. M. Coulter & Rose var. *recurva* (A. W. Hill) Affolter. Huachuca water umbel; inconspicuous herbaceous perennial. SR: 9434; uncommon, shallow water along Santa Cruz River.

Lomatium nevadense (S. Watson) J. M. Coulter & Rose var. *parishii* (J. M. Coulter & Rose) Jepson. Indian root; herbaceous perennial. SC: 8843, 9084; rare, mesquite grasslands.

Spermolepis echinata (Nutt. ex DC.) Heller. Scale seed; winter annual. SC: 8903; occasional, canyons and uplands. SR: 9104; uncommon, grasslands.

Yabea microcarpa (Hook. & Arn.) K.-Pol [*Caucalis microcarpa* Hook. & Arn.]. Winter annual. SC: 9024, 9025; locally abundant, north-facing slopes in oak savanna.

Apocynaceae

Apocynum cannabinum L. Dogbane, Indian hemp; herbaceous perennial. SC: 9360; rare, one population in Coal Mine Canyon.

Haplophyton crooksii (L. Benson) L. Benson. Cockroach plant, *hierba de la cucuracha*; herbaceous perennial. SC: 9500, E.A. Lewis 012; rare, rocky slopes, canyons.

Telosiphonia brachysiphon (Torr.) Henrickson [*Macrosiphonia brachysiphon* (Torr.) A. Gray]. Rock trumpet; herbaceous perennial. SC: 8523, E.A. Lewis 013, locally abundant on rocky slopes. SR: 9579; rare, grasslands.

Araliaceae

Aralia humilis Cav. *Tepetate*; shrub. SC: 9703; rare, rocky north-facing slope.

Aristolochiaceae

Aristolochia watsonii Wootton & Standley. Indian

root; herbaceous perennial. SC: 8907, 9550; uncommon and infrequent, mostly on rock walls.

Asclepiadaceae

Asclepias asperula (Dcne.) Woodson ssp. *asperula* [*A. capricornu* Woodson sensu Kearny and Peebles (1960)]. Antelope horns; herbaceous perennial. SC: 9220; rare, grasslands. SR: 9397; uncommon, grasslands.

Asclepias involucrata Engelm. Milkweed; herbaceous perennial. SR: 9154; uncommon, grasslands.

Asclepias linaria Cav. Milkweed; shrub. SC: 8437; rare, ridgetops.

Asclepias nummularia Torr. Milkweed, *yerba de cuerve*; herbaceous perennial. SC: 9279; rare, grasslands, rocky slopes. SR: 9394; occasional, grasslands.

Asclepias nyctaginifolia A. Gray. Four o'clock milkweed; herbaceous perennial. SC: 9551; rare, canyons, rocky slopes. SR: uncommon, grasslands.

Asclepias subverticillata (A. Gray) Vail. Poison milkweed, western whorled milkweed; herbaceous perennial. SR: 8239; common, grasslands, Sharp Spring drainage.

Asclepias tuberosa L. ssp. *interior* Woodson. Butterfly weed, pleurisy root, orange milkweed; herbaceous perennial. SR: 8280; uncommon, grasslands.

Funastrum cynanchoides Dcne. ssp. *heterophyllum* (Engelm. ex Torr.) Kartesz [*F. heterophyllum* (Engelm.) Standley]. Climbing milkweed; herbaceous perennial vine. SC: 9292; rare, canyons. SR: 8585; uncommon, on shrubs in grasslands.

Asteraceae

Acourtia thurberi (A. Gray) Reveal & King [*Perezia thurberi* A. Gray]. Large herbaceous perennial. SC: 8771; rare, canyons.

Acourtia wrightii (A. Gray) Reveal & King [*Perezia wrightii* A. Gray]. Brownfoot; herbaceous perennial. SC: 8922; rare, uplands.

Ambrosia confertiflora DC. [*Franseria confertiflora* (DC.) Rydberg]. Slimleaf bursage; herbaceous perennial. SR: 8594; abundant, grasslands.

Ambrosia psilostachya DC. Western ragweed; herbaceous perennial. SR: 8599; locally abundant, grasslands, Parker Canyon.

- Ambrosia trifida* L. var. *texana* Scheele [*A. aptera* DC.]. Ragweed, *chuchuni*; herbaceous perennial. SC: 8656; abundant along Sonoita Creek. SR: 8302; common, roadsides, low areas, Santa Cruz River bottom.
- Ananthus squamulosa* (A. Gray) King & H.E. Robinson [*Brickellia squamulosa* A. Gray]. Herbaceous perennial. SR: 9728, 9736; locally common, Parker Canyon.
- Antheropeas lanosum* (A. Gray) Rydberg. [*Eriophyllum lanosum* A. Gray]. Woolly-daisy; winter annual. SC: 8920A, 9076; common in mesquite grasslands.
- Artemisia campestris* L. ssp. *borealis* (Pallas) Hall & Clements var. *scouleriana* (Hook.) Cronq. [*A. pacifica* Nutt.]. Wormwood; herbaceous perennial. SR: 9623; rare, Parker Canyon.
- Artemisia dracunculus* L. [*A. dracunculoides* Pursh]. False tarragon; herbaceous perennial. SC: 9707; rare, north-facing slope in Coal Mine Canyon.
- Artemisia ludoviciana* Nutt. ssp. *albula* (Wooton) Keck. Wormwood; herbaceous perennial. SC: 8673; common, north-facing slopes. SR: occasional, oak woodlands and savannas.
- Artemisia ludoviciana* Nutt. ssp. *sulcata* (Rydberg) Keck. SR: 8728A; occasional, oak woodlands and savannas.
- Baccharis bigelovii* A. Gray. Shrub. SR: 9694, 9726; rare, oak woodland adjacent to Parker Canyon.
- Baccharis pteronioides* DC. *Yerba de pasmo*; small shrub. SC: 9365; common in grasslands. SR: 9376; common, grasslands.
- Baccharis salicifolia* (Ruiz & Pavón) Pers. [*B. glutinosa* Pers.]. Seep willow, *batamote*, *jarilla*; shrub. SC: 9651; occasional along Sonoita Creek, Fresno Canyon. SR: 9660; occasional, Parker Canyon.
- Baccharis sarothroides* A. Gray. Desert broom, *romerillo*; shrub. SC: 8811; common, canyons. SR: 9723; uncommon, mostly roadsides.
- Baccharis thesioides* Kunth. Shrub. SC: 8759; rare, canyon walls, north-facing slopes.
- Bahia absinthifolia* Benth. var. *dealbata* (A. Gray) A. Gray. Perennial herb. SC: 9271; rare, rocky slopes.
- Baileya multiradiata* Harvey & A. Gray ex A. Gray. Desert marigold; perennial herb. SC: 9142; rare, grasslands.
- Barkleyanthus salicifolius* (Kunth) H.E. Robinson & Brett. [*Senecio salignus* DC.] Shrub. SC: 8914; common in gallery forest along Sonoita Creek.
- Bebbia juncea* (Benth.) Greene var. *aspera* Greene. Sweet bush; shrub. SC: 9414; rare, rocky uplands.
- Berlandiera lyrata* Benth. Chocolate flower, *yerba de la víbora*; herbaceous perennial. SR: 9160; occasional, grasslands, roadsides.
- Bidens aurea* (Ait.) Sherff. Bur marigold; perennial herb. SC: 8652, 8773, 9719; uncommon, along streams.
- Bidens bigelovii* A. Gray. Beggar ticks, Spanish needles; summer annual. SR: 9619, 9692; uncommon, Parker Canyon.
- Bidens ferulaefolia* (Jacq.) DC. Beggar ticks, Spanish needles; annual. SR: 8320; occasional, springs.
- Bidens laevis* (L.) B.S.P. Bur marigold; herbaceous perennial. SR: 8781, 9573; common, springs, Santa Cruz River bottom.
- Bidens leptcephala* Sherff. Beggar ticks, Spanish needles; summer annual. SC: 8356; abundant, canyons, oak woodlands. SR: 8700, common below oaks.
- Brickellia amplexicaulis* B. L. Robinson var. *amplexicaulis*. Perennial herb. SC: 8763; rare, upper Fresno Canyon.
- Brickellia baccharidea* A. Gray. Shrub. SC: 9680; rare, Fresno Canyon.
- Brickellia betonicifolia* A. Gray. Herbaceous perennial. SR: 9699; rare, oak savanna.
- Brickellia californica* (Torr. & A. Gray) A. Gray var. *californica*. Shrub. SC: 8807; uncommon, canyons.
- Brickellia coulteri* A. Gray. Perennial herb. SC: 8837; rare, canyons.
- Brickellia eupatorioides* (L.) Shinnery var. *chlorolepis* (Wooton & Standley) B. L. Turner [*Kuhnia rosmarinifolia* Vent. var. *chlorolepis* (Wooton & Standley) Blake]. Herbaceous perennial. SR: 8563; common, grasslands.
- Brickellia floribunda* A. Gray. Robust perennial herb. SC: uncommon, along Sonoita Creek. SR: 9717; common, Parker Canyon.
- Brickellia venosa* (Wooton & Standley) B. L. Robinson. Herbaceous perennial. SC: 8676B, 9720; occasional, canyons.
- Calycoseris wrightii* A. Gray. Tackstem; winter annual. SC: 9074; rare, uplands.
- Carminatia tenuiflora* DC. Plume weed; summer annual. SC: 8657; rare, shaded canyon walls.

- Carphochaete bigelovii* A. Gray. Bristlehead; low shrub. SC: 9283; rare, rocky uplands. SR: 9102; rare, oak woodland adjacent to Parker Canyon.
- Chaetopappa ericoides* (Torr.) Nesom [*Aster arenosus* (Heller) Blake, *A. hirtifolius* Blake]. White aster, rose heath; herbaceous perennial. SC: 9029; occasional, mesquite grasslands. SR: 9377; common, grasslands.
- Cirsium grahami* A. Gray. Thistle; large biennial. SR: 8282; uncommon, springs.
- Cirsium neomexicanum* A. Gray. Thistle; biennial. SC: 9136; occasional, mostly in canyons. SR: occasional, grasslands.
- Cirsium ochrocentrum* A. Gray. Yellow spine thistle; biennial. SR: 9368; common, grasslands.
- Conyza canadensis* (L.) Cronq. [*Erigeron canadensis* L.]. Horseweed; summer annual. SC: 8658; common, canyons. SR: 8696; locally abundant, grasslands.
- Cosmos parviflorus* (Jacq.) Pers. Cosmos; summer annual. SR: 9714; rare, Parker Canyon.
- Eclipta prostrata* (L.) L. [*E. alba* (L.) Hassk.]. *Yerba de tajo*; summer annual. SC: 9669; rare, wet ground along Sonoita Creek.
- Ericameria laricifolia* (A. Gray) Shinnery [*Aplopappus laricifolius* A. Gray]. Turpentine bush; shrub. SC: 9730; common, north-facing slopes, ridgetops.
- Ericameria nauseosa* (Pallas ex Pursh) Nesom & Baird ssp. *nauseosa* var. *latisquamea* (A. Gray) Nesom & Baird [*Chrysothamnus nauseosus* (Pallas ex Pursh) Britt. ssp. *latisquameus* (A. Gray) Hall & Clements]. Rabbitbrush; shrub. SR: 9724; abundant, Parker Canyon.
- Erigeron ariosolus* Nesom [*E. divergens* Torr. & A. Gray, in part]. Fleabane; annual or herbaceous perennial. SR: 8237, 8279, 8549B; common, grasslands.
- Erigeron colomexicanus* A. Nelson [*E. divergens* Torr. & A. Gray, in part]. Fleabane; herbaceous perennial. SC: 9211; uncommon, along stream, Fresno Canyon.
- Erigeron divergens* Torr. & A. Gray. Spreading fleabane; annual or herbaceous perennial. SC: 8446, 8916, 9082, 9224; common, canyons and uplands. SR: 9100, 9602; common, grasslands.
- Erigeron flagellaris* A. Gray. Fleabane; herbaceous perennial. SR: 9246, 9252, 9310; common, grasslands and sacaton flats.
- Erigeron oreophilus* Greenm. Fleabane; herbaceous perennial. SC: 8477; uncommon, canyons, below trees.
- Evax verna* Raf. var. *verna* [*E. multicaulis* DC. var. *multicaulis*]. Rabbit tobacco, cotton rose; winter annual. SC: 9073; common, mesquite grasslands. SR: 9110, 9250; occasional, grasslands.
- Filago californica* Nutt. *Yerba impia*; winter annual. SC: 9014B, 9017, 9087; common, canyons and slopes.
- Fleischmannia pycnocephala* (Less.) King & H.E. Robinson [*Eupatorium pycnocephalum* Less.]. Thoroughwort; herbaceous perennial. SC: 8774; rare, north-facing slopes.
- Gaillardia pinnatifida* Torr. Blanket flower; herbaceous perennial. SR: 8726; occasional, grasslands and roadsides.
- Gamochaeta purpurea* (L.) Cabrera [*Gnaphalium purpureum* L.]. Cudweed; winter annual. SC: 9014A, 9026; abundant, mesquite grasslands. SR: 9057; common, grasslands.
- Guardiola platyphylla* A. Gray. Shrub. SC: 9552; uncommon, Fresno Canyon.
- Gutierrezia microcephala* (DC.) A. Gray. Snakeweed; subshrub. SC: 8772; common in uplands.
- Helenium thurberi* A. Gray. Sneezeweed; annual. SC: 8659, 8741; uncommon along streams.
- Helianthus annuus* L. Common sunflower, *girasol*; tall summer annual. SC: 9653; occasional, along Sonoita Creek. SR: 8303; abundant, low areas, roadsides.
- Helianthus petiolaris* Nutt. Sunflower, *girasol*; summer annual. SC: 9683; rare, canyons. SR: 8731; common, Parker Canyon.
- Heliomeris longifolia* (Robinson & Greenm.) Cockerell var. *annua* (M.E. Jones) Yates [*Viguiera annua* (Jones) Blake]. Annual gold-eneeye; late summer annual. SC: 8819; common, uplands. SR: 9688; abundant, grasslands.
- Heliomeris multiflora* Nutt. [*Viguiera multiflora* (Nutt.) Blake]. Golden eye; herbaceous perennial. SR: 8736; uncommon, springs.
- Heterosperma pinnatum* Cav. Summer annual. SC: 8540; uncommon, north-facing slope, Coal Mine Canyon. SR: 8590, common, Parker Canyon.
- Heterotheca rutteri* (Rothrock) Shinnery. Herbaceous perennial. SR: 8264; locally common, grasslands.

- Heterotheca subaxillaris* (Lam.) Britton & Rusby. Telegraph plant; herbaceous perennial. SC: 8757; common, along Sonoita Creek, canyons. SR: 8553; common, grasslands and roadsides.
- Hymenoclea monogyra* Torr. & A. Gray ex A. Gray. Burrobush; shrub. SC: 8812; common along Sonoita Creek. SR: 9693; rare, Parker Canyon.
- Hymenothrix wislizenii* A. Gray. Summer annual. SR: 8583; occasional, grasslands.
- Hymenothrix wrightii* A. Gray. Herbaceous perennial. SC: 8768, 9732; uncommon, Fresno Canyon.
- Isocoma tenuisecta* Greene [*Aplopappus tenuisectus* (Greene) Blake]. Burroweed; subshrub. SC: 9707; common, mesquite grasslands. SR: 9713; uncommon, grasslands.
- Koanophyllon solidaginifolium* (A. Gray) King & H.E. Robinson [*Eupatorium soldaginifolium* A. Gray]. Thoroughwort; herbaceous perennial. SC: 9506, 9731; rare, north-facing slopes.
- **Lactuca serriola* L. Prickly lettuce, wild lettuce; annual. SC: 9467; occasional, canyons, rocky slopes. SR: 9451; occasional, grasslands.
- Laennecia coulteri* (A. Gray) Nesom [*Conyza coulteri* A. Gray]. Summer annual. SC: 9649; uncommon, sandy soil along Sonoita Creek. SR: 8338; occasional, grasslands.
- Laennecia sophiifolia* (Kunth) Nesom [*Conyza sophiaefolia* Kunth]. Annual. SC: 8765; uncommon, canyons. SR: 9657; occasional, grasslands.
- Lasianthaea podocephala* (A. Gray) K. Becker [*Zexmenia podocephala* A. Gray]. Herbaceous perennial. SC: 8535, 9583; rare, below trees in canyons. SR: 9629; rare, oak woodland adjacent to Parker Canyon.
- Machaeranthera gracilis* (Nutt.) Shinnery [*Aplopappus gracilis* (Nutt.) A. Gray]. Annual. SC: 8666; common, grasslands, uplands. SR: 8347; common, grasslands.
- Machaeranthera pinnatifida* (Hook.) Shinnery ssp. *pinnatifida* var. *pinnatifida* [*Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydberg) Blake]. Herbaceous perennial. SR: 9301; locally common, grasslands.
- Machaeranthera tagetina* Greene [*Aster tagetinus* (Greene) Blake]. Herbaceous perennial. SC: 8393, 9586; common, below mesquite. SR: 9572; abundant, grasslands.
- Machaeranthera tanacetifolia* (Kunth) Nees [*Aster tanacetifolius* (Kunth) Nees]. Herbaceous perennial. SC: 9722; uncommon, along Sonoita Creek. SR: 8343, 8703, 9600, 9677; common, roadsides, Parker Canyon, Santa Cruz floodplain.
- Malacothrix clevelandii* A. Gray. Cleveland yellow saucers; winter annual. SC: 9079, 9121; uncommon, canyons and rocky slopes. SR: 9242; uncommon, mostly below oaks.
- Malacothrix fendleri* A. Gray. Desert dandelion; winter annual. SC: 9015; common, mesquite grasslands. SR: 9097, 9157; common, grasslands.
- Melampodium longicorne* A. Gray. Summer annual. SC: 8385; uncommon, canyons. SR: 8591; rare, Parker Canyon.
- Melampodium sericeum* Lag. [*M. hispidum* Kunth]. Summer annual. SC: 8663; uncommon, canyons. SR: 8309, 8701; common, Parker Canyon.
- Packera neomexicana* (A. Gray) W. A. Weber & A. Löve [*Senecio neomexicanus* A. Gray]. New Mexico groundsel; herbaceous perennial. SR: 9387; rare, drainages.
- Parthenice mollis* A. Gray. Robust summer annual. SC: 8494; rare, canyons.
- Pectis filipes* Harvey & A. Gray. Fetid marigold; summer annual. SC: 8471; uncommon, uplands.
- Pectis longipes* A. Gray. Fetid marigold; herbaceous perennial. SC: 9228; uncommon, mesquite grassland. SR: 8777, 9375; uncommon, grasslands.
- Pectis prostrata* Cav. Fetid marigold; summer annual. SC: 8531; uncommon, grasslands. SR: 9618; rare, Parker Canyon.
- Porophyllum gracile* Benth. Odora; herbaceous perennial. SC: 9364; rare, uplands.
- Porophyllum ruderae* (Jacq.) Cass. ssp. *macrocephalum* (DC.) R.R. Johnson [*P. macrocephalum* DC.]. Yerba del venado; summer annual. SC: 8423; uncommon, canyons.
- Pseudognaphalium canescens* (DC.) W. A. Weber ssp. *canescens* [*Gnaphalium wrightii* A. Gray]. Cudweed; herbaceous perennial. SC: 8766; uncommon, canyons. SR: 8318, 8699; locally common, grasslands.
- Pseudognaphalium leucocephalum* (A. Gray) A. Anderb. [*Gnaphalium leucocephalum* A. Gray]. White cudweed; herbaceous perennial. SC: 8388, 8755; uncommon, canyon bottom. SR: 9691; uncommon, Parker Canyon.

- Pseudognaphalium pringlei* (A. Gray) A. Anderb. [*Gnaphalium pringlei* A. Gray]. Cudweed; herbaceous perennial. SR: 9519; occasional, grasslands.
- Pseudognaphalium stramineum* (Kunth) W. A. Weber [*Gnaphalium chilense* Spreng.]. Cudweed; annual. SC: 9233; uncommon, canyons. SR: 8267; occasional, Santa Cruz River bottom.
- Psilactis asteroides* A. Gray. Summer annual. SR: 8241; abundant, low areas, roadsides, washes.
- Pyrrhopappus pauciflorus* (D. Don) DC. [*P. multicaulis* DC.]. False dandelion; herbaceous perennial. SR: 8305, 8328, 9371; uncommon, springs and Santa Cruz River bottom.
- Rafinesquia californica* Nutt. California chicory; winter annual. SC: 9362; uncommon, rocky slopes.
- Rafinesquia neomexicana* A. Gray. Desert chicory; winter annual. SC: 9012, 9016; common, canyons, rocky slopes.
- Sanvitalia abertii* A. Gray. Summer annual. SC: 8485; rare, canyons. SR: 8718, 9625; uncommon, Parker Canyon.
- Senecio flaccidus* Less. var. *flaccidus* [*S. longilobus* Benth.]. Threadleaf groundsel; shrub. SC: 9284; occasional, canyons. SR: 8778; occasional, grasslands.
- Solidago velutina* DC. [*S. sparsiflora* A. Gray]. Goldenrod; herbaceous perennial. SC: 9712; rare, one patch found in canyon west of Fresno Canyon. SR: 8578; uncommon, mostly oak woodlands.
- **Sonchus asper* (L.) Hill. Sow thistle; annual. SC: 9151; occasional, mostly in canyons. SR: 9156, 9317; occasional, Santa Cruz River bottom.
- Stephanomeria exigua* Nutt. Wire lettuce; annual. SC: 9471; rare, canyons.
- Stephanomeria pauciflora* (Torr.) A. Nelson. Wire lettuce; herbaceous perennial. SC: 9366; occasional, canyons and uplands. SR: 8723, 9401; occasional, grasslands.
- Stephanomeria thurberi* A. Gray. Wire lettuce; summer annual. SR: 9450; occasional, grasslands.
- Symphotrichum divaricatum* (Nutt.) Nesom [*Aster exilis* Ell.]. Annual. SC: 8469; common in wetlands. SR: 8782; occasional, springs, Santa Cruz River bottom.
- Symphotrichum falcatum* (Lindley) Nesom var. *commutatum* (Torr. & A. Gray) Nesom [*Aster commutatus* (Torr. & A. Gray) A. Gray]. White prairie daisy; perennial herb. SR: 8571; common, springs.
- **Taraxacum officinale* G. H. Weber ex F. H. Wigg. Dandelion; annual. SC: 9475; rare in wet ground along streams. SR: 9112; uncommon, springs.
- Thelesperma megapotamicum* (Spreng.) Kuntze. Herbaceous perennial. SR: 9369; common, grasslands.
- Thymophylla pentachaeta* (DC.) Small var. *hartwegii* (A. Gray) Strother [*Dyssodia pentachaeta* (DC.) B. L. Robinson]. Herbaceous perennial. SC: 9221, 9272; uncommon, uplands.
- Tithonia thurberi* A. Gray. Summer annual. SC: 8544; uncommon, north-facing slopes.
- Townsendia exscapa* (Richardson) Porter. Herbaceous perennial. SR: 9257; rare, grasslands.
- Trixis californica* Kellogg. Shrub. SC: 8364; occasional, canyons and rocky slopes.
- Uropappus lindleyi* (DC.) Nutt. [*Microseris linearifolia* (DC.) Schultz-Bip.]. Silver puffs; winter annual. SC: 8867, 8924; occasional, uplands. SR: 9054; occasional, grasslands, below oaks.
- Verbesina encelioides* (Cav.) Benth. & Hook. f. ssp. *exauriculata* (Robinson & Greenm.) J. R. Coleman. Crownbeard; summer annual. SC: 8691; uncommon, weedy terrace adjacent to Sonoita Creek. SR: uncommon, Parker Canyon.
- Viguiera cordifolia* A. Gray. Golden eye; herbaceous perennial. SR: 8598; locally common, Parker Canyon.
- Viguiera dentata* (Cav.) Spreng. var. *dentata*. Golden eye; herbaceous perennial. SC: 8672; abundant in mesquite bosques adjacent to Sonoita Creek. SR: 8586; abundant, oak woodlands.
- Viguiera dentata* (Cav.) Spreng. var. *lancifolia* Blake. SC: 8824; occasional, rocky slopes.
- Xanthium strumarium* L. var. *canadense* (P. Mill.) Torr. & A. Gray [*X. saccharatum* Wallr.]. Cocklebur, *abrojo*; summer annual. SC: 8758; abundant in moist ground along streams. SR: 8597; common, low areas, washes, Santa Cruz River bottom.
- Xanthocephalum gymnospermoides* (A. Gray) Benth. & Hook. Summer annual. SR: 8262; abundant, grasslands.

Zinnia acerosa (DC.) A. Gray [*Z. pumila* A. Gray]. Desert zinnia; low shrub. SC: 9326; uncommon, uplands.

Zinnia grandiflora Nutt. Prairie zinnia; herbaceous perennial. SR: 9400; occasional, grasslands.

Zinnia peruviana (L.) L. [*Z. multiflora* L.]. Summer annual. SR: 8720; uncommon, Parker Canyon.

Berberidaceae

Berberis wilcoxii Kearney. Barberry; shrub. SC: 9216; rare, north-facing slope in Fresno Canyon.

Bignoniaceae

Chilopsis linearis (Cav.) Sweet ssp. *arcuata* (Fosberg) Henrickson. Desert willow, *mimbre*; small tree. SC: 9468; uncommon, along Sonoita Creek. SR: 9621; abundant, Parker Canyon.

Tecoma stans (L.) Juss. ex Kunth var. *angustatum* Rehder. Trumpet flower, *lluvia de oro*, *palo de arco*, *gloria*; shrub. SC: 8821; rare, rocky slopes.

Bixaceae

Amoreuxia palmatifida Moc. & Sessé ex DC. *Témaqui*, *saiya*; perennial herb. E.A. Lewis 011; common, grasslands and uplands. SR: 9526; rare, grasslands.

Boraginaceae

Amsinckia menziesii (Lehm.) A. Nelson & J. F. Macbride var. *intermedia* (Fischer & C. A. Meyer) Ganders [*A. intermedia* Fischer & C. A. Meyer]. Fiddleneck; winter annual. SC: 9021; rare, Coal Mine Canyon.

Cryptantha angustifolia (Torr.) Greene. Narrow-leaved popcorn flower; winter annual. SC: 9139A; uncommon, rocky uplands.

Cryptantha barbiger (A. Gray) Greene. Bearded popcorn flower; winter annual. SC: 8902, 8906, 8925, 9087; abundant, canyons and uplands. SR: 9384; rare, oak savannas.

Cryptantha micrantha (Torr.) I. M. Johnston var. *micrantha*. Purple-rooted popcorn flower; winter annual. SC: 9133; uncommon, sandy floodplain of Sonoita Creek.

Cryptantha pterocarya (Torr.) Greene var. *cycloptera* (Greene) J. F. Macbride. Winter annual. SC: 8866, 9119; abundant, mostly on rocky slopes.

Cryptantha pusilla (Torr. & A. Gray) Greene. Popcorn flower; winter annual. SC: 8865, 9069, 9139B; uncommon, canyons and rocky uplands. SR: 9155; uncommon, grasslands.

Lithospermum cobrense Greene. Puccoon; herbaceous perennial. SR: 9482, 9486; common, grasslands.

Lithospermum incisum Lehm. Puccoon; herbaceous perennial. SR: 9302; occasional, grasslands.

Pectocarya recurvata I. M. Johnston. Arch-nutted combbur; winter annual. SC: 8845, 9132; occasional, canyons, slopes. SR: 9153; occasional, grasslands, disturbed areas.

Plagiobothrys arizonicus (A. Gray) Greene ex A. Gray. Blood weed, Arizona popcorn flower; winter annual. SC: 8855, 9116; common, grasslands and canyons. SR: 8945; common, sacaton flats, grasslands.

Brassicaceae

Arabis perennans S. Watson. Rock cress; herbaceous perennial. SC: 8831, 8858; uncommon, rock walls.

**Capsella bursa-pastoris* (L.) Medik. Shepard's purse, *paniquesillo*; winter annual. SC: 9266; rare, gallery forest along Sonoita Creek. SR: 9047; uncommon, disturbed areas.

Descurainia pinnata (Walt.) Britton ssp. *halictorum* (Cockerell) Detling. Tansy mustard; winter annual. SC: 8848; common, canyons and uplands. SR: 9058; abundant, roadsides, grasslands.

Descurainia pinnata (Walt.) Britton ssp. *ochroleuca* (Wooton) Detling. Tansy mustard; winter annual. SR: 8939; abundant, roadsides, grasslands.

**Descurainia sophia* (L.) Webb ex Prantl. Flixweed; winter annual. SC: 9131; uncommon, along Sonoita Creek. SR: 9048; common, roadsides, grasslands.

Draba cuneifolia Nutt. ex Torr. & A. Gray var. *integrifolia* S. Watson. Whitlow grass; winter annual. SC: 8826, 8840; common, canyons. SR: 8948; uncommon, grasslands.

Dryopetalon runcinatum A. Gray. Winter annual. SC: 8873, 9013; rare, rock walls, Fresno and Coal Mine canyons.

**Lepidium campestre* (L.) Ait. f. Peppergrass; winter annual. SR: 9300; rare, springs.

Lepidium lasiocarpum Nutt. var. *lasiocarpum*. Sand peppergrass; winter annual. SC: 8851; common, grasslands and drainages. SR: 8935; abundant, low areas, grasslands.

Lepidium thurberi Wooton. Peppergrass; spring-

- summer annual. SC: 9491; uncommon, canyons. SR: 9303; locally abundant, Parker Canyon, grasslands.
- Lepidium virginicum* L. var. *medium* (Greene) C. L. Hitchcock [*L. medium* Greene]. Peppergrass; winter annual. SC: 8842; common, rocky slopes.
- Lesquerella gordonii* (A. Gray) S. Watson var. *gordonii*. Bladder pod; winter annual. SC: 8878; rare, canyons.
- Pennellia micrantha* (A. Gray) Nieuwl. [*Thelypodium micranthum* (A. Gray) S. Watson]. Annual or biennial. SC: 9510, 9645; rare, north-facing slopes, Coal Mine Canyon.
- Pennellia robinsonii* Rollins. Annual or biennial. SR: 8256, 8307, 9567, 9597; occasional, grasslands, springs.
- Rorippa nasturtium-aquaticum* (L.) Hayek. Watercress, *berro*; aquatic herbaceous perennial. SC: 9146; occasional, in streams. SR: 9160; occasional, springs, Santa Cruz River.
- Schoenocrambe linearifolia* (A. Gray) Rollins [*Sisymbrium linearifolium* (A. Gray) Payson]. Herbaceous perennial. SC: 8379, 8476; common, rocky slopes. SR: 8721; uncommon, grasslands.
- Sibara virginica* (L.) Rollins. Winter annual. SR: 9249; uncommon, sacaton flats.
- **Sisymbrium irio* L. London rocket; winter annual. SC: 9013; common, particularly in overgrazed mesquite grasslands. SR: 9046; occasional, disturbed areas.
- Streptanthus carinatus* C. Wright ex A. Gray ssp. *arizonicus* (S. Watson) Kruckeberg, Rodman & Worthington [*S. arizonicus* S. Watson]. Twist flower; winter annual. SC: 9075, 9090; rare, desert grasslands.
- Thlaspi montanum* L. var. *fendleri* (A. Gray) P. Holmgren [*T. fendleri* A. Gray]. Wild candytuft; herbaceous perennial. SR: 8947; uncommon, north-facing slope adjacent to Sharp Spring.
- Thysanocarpus curvipes* Hook. Lace pod; winter annual. SC: 8846; occasional, rocky slopes.
- Cactaceae**
- Coryphantha vivipara* (Nutt.) Britton & Rose in N. L. Britton & A. Brown [*C. vivipara* var. *bisbeeana* (Orcutt) L.D. Benson]. Beehive cactus; small stem succulent. SC: uncommon, grasslands. SR: occasional, grasslands.
- Cylindropuntia leptocaulis* (DC.) F. M. Knuth in C. Backeberg & F. M. Knuth [*Opuntia leptocaulis* DC.]. Desert Christmas cactus, succulent. SC: rare, included based on a photo by R. Gagnon.
- Cylindropuntia spinosior* (Engelm.) F. M. Knuth in C. Backeberg & F. M. Knuth [*Opuntia spinosior* (Engelm.) Toumey]. Cane cholla, *cholla*; large succulent. SC: common, grasslands and rocky slopes. SR: occasional, grasslands, Parker Canyon.
- Cylindropuntia versicolor* (Engelm. ex J. M. Coulter) F. M. Knuth in C. Backeberg & F. M. Knuth [*Opuntia versicolor* Engelm. ex J. M. Coulter]. Staghorn cholla, *cholla*, *siviri*; large succulent. SC: rare, a single, sterile plant in a drainage on the north end of the park appears to be this species.
- Echinocereus fendleri* (Engelm.) Sencke ex J. N. Haage. Hedgehog cactus; small stem succulent. SC: occasional, grasslands and rocky slopes.
- Echinocereus rigidissimus* (Engelm.) Engelm. ex Haage. [*E. pectinatus* (Scheidw.) Engelm. var. *rigidissimus* (Engelm.) Engelm. ex Rumpel]. Rainbow cactus; small stem succulent. SC: occasional, rocky slopes. SR: uncommon, grasslands.
- Echinomastus intertextus* (Engelm.) Britton & Rose]. Small stem succulent. SR: 8953; locally common, grasslands.
- Ferocactus wislizeni* (Engelm.) Britton & Rose. Barrel cactus; large stem succulent. SC: occasional, grasslands.
- Mammillaria grahamii* Engelm. [*M. microcarpa* Engelm.]. Fishhook cactus; small stem succulent. SC: occasional, rocky slopes.
- Mammillaria macdougalii* Rose in L.H. Bailey]. Small, flat succulent. SC: occasional, rocky slopes, canyons.
- Opuntia engelmannii* Salm-Dyck ex Engelm. var. *engelmannii*. Engelmann prickly pear, *nopal*; large succulent. SC: common, mostly in mesquite grasslands. SR: uncommon, grasslands, oak woodlands.
- Opuntia macrorhiza* Engelm. [*O. plumbea* Rose]. Prickly pear; small succulent. SR: occasional, grasslands.
- Opuntia phaeacantha* Engelm. Prickly pear, *nopal*; sprawling succulent. SC: occasional, grasslands. SR: uncommon, grasslands.

Opuntia santa-rita (Griffiths & Hare) Rose. Santa Rita prickly pear, *nopal*; large succulent. SC: abundant on rocky slopes.

Campanulaceae

Lobelia cardinalis L. Cardinal flower; perennial herb. SC: 8490; uncommon, wet soil along streams.

Lobelia fenestralis Cav. Summer annual. SR: 8555; uncommon, grasslands, sacaton flats.

Nemacladus glanduliferus Jepson var. *orientalis* McVaugh. Thread plant; winter annual. SC: 9070, 9135; locally common, rocky slopes, canyons.

Triodanis holzingeri McVaugh. Venus looking glass; annual. SC: 9359; rare, canyons.

Triodanis perfoliata (L.) Nieuwl. Venus looking glass; annual. SC: 9203, 9223; occasional, canyons.

Capparaceae

Cleome lutea Hook. var. *jonesii* J.F. Macbride [*C. jonesii* J.F. Macbride]. Bee plant; robust summer annual. SC: 8688; uncommon, sandy soils adjacent to Sonoita Creek.

Polanisia dodecandra (L.) DC. ssp. *trachysperma* (Torr. & A. Gray) Iltis [*P. trachysperma* Torr. & A. Gray]. Clammy weed; summer annual. SC: 8464; occasional, along streams. SR: 8717; common, Parker Canyon.

Caprifoliaceae

Sambucus mexicana K. Presl ex DC. Mexican elder, *tápiro*; small tree. SC: 8915; common along Sonoita Creek. SR: 9440; occasional, Santa Cruz River floodplain. Kartesz (1999) includes this taxon as a synonym of the widespread *S. nigra* L. ssp. *canadensis* (L.) R. Bolli. Mexican elder is a low-elevation, early spring-flowering species, while the variety of *S. nigra* [*S. caerulea* Raf.] found in Arizona occurs at much higher elevations and flowers in the summer and fall.

Caryophyllaceae

Cerastium texanum Britton. Mouse-ear chickweed; annual. SC: 9020; rare, north-facing slopes, Fresno and Coal Mine canyons.

Drymaria molluginea (Lag.) Didr. [*D. sperguloides* A. Gray]. Drymary; summer annual. SC: 8472; uncommon, rocky uplands.

Silene antirrhina L. Sleepy catchfly; winter annual. SC: 9027; common, rocky slopes. SR: 9307;

uncommon, oak woodland adjacent to Parker Canyon.

Chenopodiaceae

Atriplex canescens (Pursh) Nutt. var. *canescens*. Saltbush, *orache*; shrub. SC: 8823; uncommon, overgrazed ridgetops.

Atriplex elegans (Moq.) D. Dietr. var. *elegans*. Summer annual. SR: 9513; occasional, grasslands, roadsides.

Atriplex wrightii S. Watson. Wright saltbush; summer annual. SR: 8271, 9560; abundant, Santa Cruz River floodplain, roadsides.

**Chenopodium ambrosioides* L. Goosefoot, *hipasote*; annual. SC: 8744; uncommon, along Sonoita Creek.

Chenopodium berlandieri Moq. var. *sinuatum* (Murr) Wahl. Pitseed goosefoot; summer annual. SR: 8704, 8732, 9615; occasional, Parker Canyon, grasslands.

Chenopodium fremontii S. Watson var. *fremontii*. Goosefoot; annual. SC: 8382; occasional, canyons. SR: 9690; uncommon, Parker Canyon.

Chenopodium neomexicanum Standley var. *neomexicanum*. Goosefoot; summer annual. SC: 8382, 9548, 9670; common, canyons, uplands. SR: 9662; uncommon, below oaks.

Chenopodium watsoni A. Nelson. Goosefoot; summer annual. SR: 8258; occasional, low areas, grasslands.

Monolepis nuttalliana (J.A. Schultes) Greene. *Patata*; winter annual. SR: 8941; locally abundant, grasslands.

**Salsola tragus* L. [*S. kali* L. var. *tenuifolia* Tausch]. Tumbleweed, Russian thistle; summer annual. SC: uncommon, disturbed sites. SR: 9564; abundant, roadsides.

Convolvulaceae

Convolvulus equitans Benth. [*C. incanus* Vahl]. Hoary bindweed; herbaceous perennial vine. SC: 9585; uncommon, mostly in canyons. SR: 8710; occasional, grasslands.

Evolvulus alsinoides (L.) L. var. *angustifolia* Torr. Herbaceous perennial. SC: 9127; rare, rocky slopes.

Evolvulus arizonicus A. Gray. Herbaceous perennial. SC: 8515, 9493; occasional, canyons, rocky slopes. SR: 8308; occasional, grasslands.

Evolvulus sericeus Sw. var. *sericeus*. Herbaceous perennial. SC: 9509; rare, canyons. SR: 9381; occasional, grasslands, oak woodlands.

Ipomoea barbatisepala A. Gray. Morning glory; summer annual vine. SC: 8394, 9582; common, canyons.

Ipomoea capillacea (Kunth) G. Don [*I. muricata* Cav. *sensu* Kearney & Peebles (1960)]. Morning glory; herbaceous perennial. SR: 9520; uncommon, grasslands.

Ipomoea costellata Torr. Morning glory; summer annual vine. SC: 8366, 8513; common, canyons and uplands. SR: 8323, 9607; occasional, grasslands, Parker Canyon.

Ipomoea cristulata Hallier f. [*I. coccinea* L. *sensu* Kearney and Peebles (1960)]. Star glory, *trompillo*; summer annual vine. SC: 8466; common, canyons. SR: 8593; common, Parker Canyon.

Ipomoea hederacea Jacq. Morning glory; summer annual vine. SC: 9678; common, canyons. SR: 8595, 9610, 9727; common, Parker Canyon.

Ipomoea longifolia Benth. Morning glory; long-stemmed perennial vine. SR: 9515; common, oak savannas.

Ipomoea purpurea (L.) Roth [*I. hirsutula* Jacq. f.]. Tall morning glory; summer annual vine. SC: 8376; occasional, canyons.

Ipomoea ternifolia Cav. var. *leptotoma* (Torr.) J.A. McDonald [*I. leptotoma* Torr.]. Morning glory; summer perennial vine. SC: 8365; common, canyons.

Ipomoea thurberi A. Gray. Morning glory; summer perennial vine. SC: 8473; rare, canyons.

Crassulaceae

Crassula connata (Ruiz & Pavón) Berger var. *connata* [*Tillaea erecta* Hook. & Arn.]. Pigmy weed; winter annual. SC: 8931; uncommon, grasslands.

Sedum cockerellii Britton. Stonecrop; succulent perennial herb. SC: 9704; rare, rock walls.

Cucurbitaceae

Apodanthera undulata A. Gray. *Melón loco*, *melón de coyote*; herbaceous perennial vine. SC: 9555; occasional, canyons and grasslands. SR: 8561; occasional, grasslands.

**Citrullus lanatus* (Thunb.) Matsum. & Nakai. Watermelon; annual. SR: 9737; rare, Parker Canyon.

Cucurbita digitata A. Gray. Finger-leaved gourd, *calabacilla*, *chichicayota*, herbaceous perennial vine. SC: uncommon, washes. SR: uncommon, grasslands.

Cucurbita foetidissima Kunth. Buffalo gourd, *calabacilla*; herbaceous perennial vine. SR: 9456; occasional, grasslands.

Echinopepon wrightii (A. Gray) S. Watson. Wild balsam apple; herbaceous annual vine. SC: 8383; uncommon, canyons.

Cuscutaceae

Cuscuta erosa Yuncker. Dodder; parasitic vine. SC: 8504, 8526; uncommon, found on *Tragia nepetifolia*.

Ericaceae

Arctostaphylos pungens Kunth. Manzanita; shrub. SR: 9055; rare, oak savanna. One collection from near the north (unfenced) park boundary.

Euphorbiaceae

Acalypha neomexicana Muell.-Arg. New Mexican copperleaf; summer annual. SC: 8389; uncommon, canyons. SR: 8248, 9590; common, grasslands.

Acalypha phleoides Cav. [*A. lindheimeri* Muell.-Arg.]. Herbaceous perennial. SR: 8249; occasional, washes.

Acalypha ostryifolia Riddell. Hornbeam three-seeded mercury; summer annual. SC: 8484; uncommon, canyons and slopes. SR: 8245; occasional, washes.

Argythamnia neomexicana Muell.-Arg. [*Ditaxis neomexicana* (Muell.-Arg.) Heller]. Herbaceous perennial. SC: 8458, 8835; uncommon, rocky slopes.

Chamaesyce albomarginata (Torr. & A. Gray) Small [*Euphorbia albomarginata* Torr. & Gray]. Spurge, *golondrina*; herbaceous perennial. SC: 8461; occasional, grasslands. SR: 8243; occasional, disturbed areas.

Chamaesyce arizonica (Engelm.) Arthur [*Euphorbia arizonica* Engelm.]. Spurge, *golondrina*, herbaceous perennial. SC: 8377, 8412; occasional, rocky slopes.

Chamaesyce capitellata (Engelm.) Millsp. [*Euphorbia capitellata* Engelm.]. Spurge, *golondrina*; herbaceous perennial. SR: 8340, 8565; occasional, grasslands.

Chamaesyce dioica (Kunth) Millsp. [*Euphorbia indivisa* (Engelm.) Tidestrom]. Spurge, *golondrina*; summer annual. SC: 8463; common, watercourses. SR: 8332; occasional, washes.

- Chamaesyce florida* (Engelm.) Millsp. [*Euphorbia florida* Englem.]. *Golondrina*; summer annual. SC: 8470; uncommon, grasslands and uplands.
- Chamaesyce hirta* (L.) Millsp. [*Euphorbia hirta* L.]. Spurge, *golondrina*; summer annual. SC: 8349; occasional, canyons. SR: 8587; occasional, washes.
- Chamaesyce hyssopifolia* (L.) Small [*Euphorbia hyssopifolia* L.]. *Golondrina*, summer annual. SC: 8387; uncommon, canyons. SR: 8251; occasional, washes, grasslands, roadsides.
- Chamaesyce melanadenia* (Torr.) Millsp. [*Euphorbia melanadenia* Torr.]. Spurge, *golondrina*; herbaceous perennial. SC: 8832, 9415; occasional, rock walls.
- Chamaesyce micromera* (Boiss. ex Engelm.) Wooton & Standley [*Euphorbia micromera* Boiss.]. Spurge, *golondrina*; summer annual. SC: 8661; uncommon, drainages.
- Chamaesyce pediculifera* (Engelm.) Rose & Standley var. *pediculifera* [*Euphorbia pediculifera* Engelm.]. Spurge, *golondrina*; herbaceous perennial. SC: 8359; occasional, rocky slopes.
- Chamaesyce revoluta* (Engelm.) Small [*Euphorbia revoluta* Engelm.]. *Golondrina*; summer annual. SC: 8521; rare, rocky slopes. SR: 8716; rare, Parker Canyon.
- Chamaesyce serpyllifolia* (Pers.) Small [*Euphorbia serpyllifolia* Pers.]. Spurge, *golondrina*; summer annual. SR: 8253, 8695; occasional, grasslands.
- Chamaesyce setiloba* (Engelm. ex Torr.) Millsp. ex Parish [*Euphorbia setiloba* Engelm.]. Spurge, *golondrina*; summer annual. SC: 8670; rare, along Sonoita Creek.
- Chamaesyce stictospora* (Engelm.) Small [*Euphorbia stictospora* Engelm.]. Spurge, *golondrina*, summer annual. SR: 8321, 8600; occasional, grasslands.
- Chamaesyce vermiculata* (Raf.) House [*Euphorbia vermiculata* Raf.]. Spurge, *golondrina*; summer annual. SR: 8304; occasional, springs.
- Cnidoscolus angustidens* Torr. *Mala mujer*, *ortiguilla*; herbaceous perennial. SC: 8456; common, rocky slopes.
- Croton pottsii* (Klotzsch) Muell.-Arg. var. *pottsii* [*C. corymbulosus* Engelm.]. Leatherweed; herbaceous perennial. SC: 9542; occasional, rocky slopes. SR: 8601; occasional, grasslands.
- Croton texensis* (Klotzsch) Muell.-Arg. var. *texensis*. Dove weed, *yerba de la tórtola*, summer annual. SC: 8668, 8692; uncommon, sandy soils along Sonoita Creek. SR: 8793; uncommon, Santa Cruz River bottom.
- Euphorbia bilobata* Engelm. Summer annual. SR: 9613, 9718; uncommon, Parker Canyon.
- Euphorbia chamaesula* Boiss. Herbaceous perennial. SR: 8281, 8333, 9312; occasional, grasslands, roadsides.
- Euphorbia cuphosperma* (Engelm.) Boiss. [*E. dentata* Michx. var. *cuphosperma* (Engelm.) Fern.]. Painted spurge; summer annual. SC: 8240; abundant, grasslands.
- Euphorbia exstipulata* Engelm. Spurge; summer annual. SC: 8459; uncommon, mesquite grasslands. SR: 8244; occasional, washes.
- Euphorbia heterophylla* L. Painted spurge; summer annual. SC: 8350; uncommon, canyons and uplands. SR: 8311; occasional, grasslands, springs.
- Euphorbia radians* Benth. Painted spurge; herbaceous perennial. SR: 9109; common, grasslands.
- Jatropha macrorhiza* Benth. var. *septemfida* Engelm. Herbaceous perennial. SC: 9472; uncommon, canyons and uplands.
- Manihot angustiloba* (Torr.) Muell.-Arg. Herbaceous perennial. SC: 9541; rare, canyons.
- Phyllanthus polygonoides* Nutt. ex Spreng. Herbaceous perennial. SC: 8488; rare, Fresno Canyon.
- Tragia laciniata* (Torr.) Muell.-Arg. Nose burn; herbaceous perennial. SR: 8319; occasional, mostly on north-facing slopes.
- Tragia nepetifolia* Cav. var. *dissecta* Muell.-Arg. Nose burn; herbaceous perennial. SC: 8358, 8500; occasional, rocky slopes.

Fabaceae

- Acacia angustissima* (P. Mill.) Kuntze. White ball acacia; shrub. SC: 8418; occasional, ridge crests. SR: 8698, 9478; occasional, grasslands. Plants appearing to belong to different varieties may occur mixed in the same populations.
- Acacia greggii* A. Gray. Catclaw, *uña de gato*; large shrub. SC: 9358; occasional, canyons.
- Acacia millefolia* S. Watson. Large shrub. SC: 8503, 9492; rare, rocky slopes.
- Amorpha fruticosa* L. False indigo; large shrub. SC: 9286; rare, one patch found in Fresno Canyon.

- Astragalus allochrous* A. Gray var. *allochrous*. Halfmoon loco; winter annual. SC: 9130; uncommon, along Sonoita Creek.
- Astragalus arizonicus* A. Gray. Locoweed; herbaceous perennial. SC: 9129, 9219; common, uplands.
- Astragalus humistratus* A. Gray var. *sonorae* (A. Gray) Jones. Locoweed; herbaceous perennial. SR: 9258; occasional, grasslands.
- Astragalus nothoxys* A. Gray. Locoweed; herbaceous perennial. SC: 9237; uncommon, canyons and uplands. SR: 9306; common, grasslands.
- Astragalus nuttallianus* DC. var. *trichocarpus* Torr. & A. Gray. Locoweed; winter annual. SC: 8904; abundant, uplands. SR: 9093; abundant, grasslands.
- **Caesalpinia gilliesii* (Hook.) Wallich ex D. Dietr. Bird-of-paradise; shrub. SC: 9473; rare, gallery forest along Sonoita Creek.
- Calliandra eriophylla* Benth. var. *erriophylla*. Fairy duster; low shrub. SC: 9327; occasional, uplands.
- Calliandra humilis* Benth. var. *reticulata* (A. Gray) L. Benson [*C. reticulata* A. Gray]. False mesquite; herbaceous perennial. SR: 8559; occasional, grasslands.
- Chamaecrista nictitans* (L.) Moench ssp. *nictitans* var. *leptadenia* (Greenman) Gandhi & Hatch [*Cassia leptadenia* Greenman]. *Yerba del piojo*; summer annual. SC: 8403; occasional, grasslands and uplands. SR: 8257; occasional, grasslands.
- Cologania angustifolia* Kunth [*C. longifolia* A. Gray]. Herbaceous perennial. SC: 9682; rare, Fresno Canyon. SR: E.A. Lewis 004; uncommon, Parker Canyon.
- Coursetia caribaea* (Jacq.) Lavin var. *caribaea* [*Cracca edwardsii* A. Gray]. Herbaceous perennial. SC: 9504; rare, oak savannas on north-facing slopes.
- Crotalaria pumila* Ortega. Rattle box; summer annual. SC: 8457; occasional, canyons and uplands. SR: 8733; occasional, mostly in Parker Canyon.
- Dalea albiflora* A. Gray. Herbaceous perennial. SC: 8808; uncommon, canyons. SR: 8507, 8579; uncommon, grasslands.
- Dalea candida* Michx. ex Willd. var. *oligophylla* (Torr.) Shinners [*Petalostemon candidum* (Willd.) Michx. var. *oligophyllum* (Torr.) Hermann]. White prairie clover; herbaceous perennial. SR: 9390; occasional, grasslands.
- Dalea formosa* Torr. Feather plume, shrub. SC: 8674, 9068; locally common, uplands.
- Dalea grayi* (Vail) L.O. Williams. Herbaceous perennial. SR: 8506; uncommon, grasslands.
- Dalea lachnostachys* A. Gray. Herbaceous perennial. SC: 9322; uncommon, rocky uplands. SR: 8722; uncommon, grasslands.
- Dalea leporina* (Ait.) Bullock. Foxtail dalea; summer annual. SR: 8620; uncommon, grasslands.
- Dalea nana* Torr. ex A. Gray var. *carnescens* Kearney & Peebles. Herbaceous perennial. SC: 8524, 9287; occasional, rocky uplands. SR: 8549C; occasional, grasslands.
- Dalea neomexicana* (A. Gray) A. Gray var. *neomexicana*. Herbaceous perennial. SC: 8682, 9273; uncommon, rocky uplands.
- Dalea pogonathera* A. Gray var. *pogonathera*. *Yerba del corazón*; herbaceous perennial. SC: 8512; occasional, uplands.
- Dalea pringlei* A. Gray. Herbaceous perennial. SC: 8752, 9222, 9288; occasional, canyon, rocky slopes.
- Dalea pulchra* H. S. Gentry. Indigo bush, shrub. SC: 8839, 9126; occasional, canyons, rocky slopes.
- Dalea versicolor* Zucc. ssp. *versicolor* var. *sessilis* (A. Gray) Barneby. Indigo bush; shrub. SR: 9305, rare, oak woodland adjacent to Parker Canyon.
- Desmanthus cooleyi* (Eaton) Trel. Herbaceous perennial. SC: 9511; rare, mesquite grasslands. SR: 9529, E.A. Lewis 002; common, grasslands and roadsides.
- Desmodium batocaulon* A. Gray. Tick clover, herbaceous perennial. SC: 8489; rare, canyons.
- Desmodium neomexicanum* A. Gray. Tick clover; summer annual. SC: 8541; rare, canyons. SR: 9614; uncommon, Parker Canyon.
- Desmodium procumbens* (P. Mill.) Hitchc. var. *exiguum* (A. Gray) Schub. Tick clover, summer annual. SC: 8681, 8687; rare, canyons.
- Desmodium psilocarpum* A. Gray. Tick clover, robust herbaceous perennial. SC: 8436, 8443, 9553, 9701; common, canyons and rocky slopes.
- Desmodium rosei* Schub. Tick clover; summer annual. SR: 9617; uncommon, Parker Canyon.
- Erythrina flabelliformis* Kearney. Southwestern

- coralbean, *chilicote*, *pionilla*; shrub. SC: 9411; common, rocky slopes.
- Eysenhardtia orthocarpa* (A. Gray) S. Watson [*E. polystachya* (Ortega) Sarg. *sensu* Kearney & Peebles (1960)]. Kidneywood, *palo dulce*; large shrub. SC: 8431, 9412; common, rocky slopes.
- Galactia wrightii* A. Gray var. *mollissima* Kearney & Peebles. Herbaceous perennial vine. SC: 8373; occasional, canyons. SR: 9459; rare, grasslands.
- Indigofera sphaerocarpa* A. Gray. Indigo, shrub. SC: rare, north-facing slope, Coal Mine Canyon.
- **Lotus corniculatus* L. Birdsfoot trefoil; herbaceous perennial. SR: 8275B; common, springs, Santa Cruz River bottom.
- Lotus greenei* Ottley ex Kearney & Peebles. Deer vetch. 9022. Herbaceous perennial; uncommon, oak savannas. SR: 8949, 9479; common, grasslands.
- Lotus humistratus* Greene. Winter annual. SC: 8877; common, mesquite grasslands. SR: 8944; abundant, grasslands.
- Lupinus brevicaulis* S. Watson. Short-stemmed lupine; winter annual. SC: 9080; occasional, mostly along drainages. SR: 9105; common, grasslands.
- Lupinus concinnus* J.G. Agardh. ssp. *orcuttii* (S. Watson) D. Dunn. Elegant lupine; winter annual. SC: 8930, 9063; occasional, mostly along drainages. SR: 9107; occasional, Parker Canyon.
- Lupinus sparsiflora* Benth. ssp. *mohavensis* Dziekanowski & D. Dunn. Lupine; winter annual. SC: 9008; locally abundant, slopes.
- Macroptilium gibbosifolium* (Ortega) Delgado [*Phaseolus heterophyllus* Willd.]. Herbaceous perennial vine. SC: 8479; uncommon, canyons. SR: 9517, 9569, 9659; common, grasslands.
- Marina calycosa* (A. Gray) Barneby [*Dalea calycosa* A. Gray]. Annual. SC: 8679, 9274; uncommon, uplands. SR: 9382; uncommon, oak savannas.
- **Medicago lupulina* L. Black medic; annual. SR: 9313, 9386; common, springs, Santa Cruz River bottom.
- **Medicago sativa* L. Alfalfa; herbaceous perennial. SR: 9370; uncommon, roadsides.
- **Melilotus indicus* (L.) All. Annual yellow sweet clover, *alfalfilla*; annual. SC: 9265; occasional along Sonoita Creek. SR: 9298; occasional, Santa Cruz River floodplain.
- **Melilotus officinalis* (L.) Lam. Sweet clover; tall annual. SR 8790, 9426; both white and yellow-flowered forms abundant, Santa Cruz River bottom.
- Mimosa aculeaticarpa* Ortega var. *biuncifera* (Benth.) Barneby [*M. biuncifera* Benth.]. Wait-a-minute, cat's claw; shrub. SC: 9470; common, rocky slopes, canyons. SR: locally abundant, grasslands.
- Mimosa dysocarpa* Benth. Shrub. SC: 9353; common, rocky slopes. SR: 8337; occasional, grasslands.
- Nissolia schottii* (Torr.) A. Gray. Herbaceous perennial vine. SC: 8409; uncommon, north-facing slopes.
- Phaseolus acutifolius* A. Gray var. *acutifolius*. Tepary bean; summer annual. SC: 9639; uncommon, washes. SR: 9616; uncommon, Parker Canyon.
- Prosopis velutina* Wooton [*P. juliflora* (Swartz) DC. var. *velutina* (Wooton) Sarg.]. Velvet mesquite, *mezquite*; small tree. SC: 9587; common, washes, ridgetops, gentle slopes. SR: uncommon, grasslands.
- Psoralidium tenuiflorum* (Pursh) Rydberg [*Psoralea tenuiflora* Pursh]. Scurf pea; herbaceous perennial. SC: 9281; rare, canyons. SR: 9396; uncommon, oak woodland adjacent to Parker Canyon.
- Rhynchosia minima* (L.) DC. Rosary bean; herbaceous perennial vine. SC: 9706, 9733; rare, rocky slopes, canyons.
- Rhynchosia senna* Gillies ex Hook. var. *texana* (Torr. & A. Gray) M.C. Johnston [*R. texana* Torr. & A. Gray]. Rosary bean; herbaceous perennial vine. SC: uncommon, north-facing slopes, canyons. SR: 8558, 9580; occasional, grasslands.
- Senna bauhinioides* (A. Gray) Irwin & Barneby [*Cassia bauhinioides* A. Gray]. Herbaceous perennial. SC: 9325; uncommon, uplands.
- Senna hirsuta* (L.) Irwin & Barneby var. *glaberrima* (M.E. Jones) Irwin & Barneby [*Cassia leptocarpa* Benth.]. Robust herbaceous perennial. SC: 8381, 8465; uncommon, canyon bottom. SR: 8556; uncommon, grasslands.
- Sphinctospermum constrictum* (S. Watson) Rose.

Summer annual. SC: 8460; rare, mesquite grasslands.

Tephrosia tenella A. Gray. Summer annual. SC: 8542; uncommon, rocky slopes. SR: 8584; uncommon, Parker Canyon.

Tephrosia vicioides Schlecht. Herbaceous perennial. SC: 8483; rare, found on one ash outcrop, where it was locally abundant.

**Trifolium fragiferum* L. Clover; herbaceous perennial. SR: 9437; uncommon, Santa Cruz River bottom.

Trifolium mucronatum Willd. ex Spreng. ssp. *lacerum* (Greene) J. Gillett [*T. lacerum* Greene]. Clover; herbaceous perennial. SR: 9523; rare, wet ground.

**Trifolium pratense* L. Red clover, herbaceous perennial. SR: 9489; uncommon, Santa Cruz River bottom.

Vicia ludoviciana Nutt. ssp. *ludoviciana*. Vetch, winter annual vine. SC: 8874; common, washes.

Zornia gemella Vogel [*Z. diphylla* (L.) Pers. sensu Kearney & Peebles (1960)]. Herbaceous perennial. SR: 9571; uncommon, grasslands.

Fagaceae

Quercus arizonica Sarg. Arizona white oak, *encino blanco*; tree. SR: 9452, 9457, 9663, 9738; common in woodland adjacent to Parker Canyon.

Quercus emoryi Torr. Emory oak, *bellota*; tree. SC: 8533; uncommon, canyons, north-facing slopes. SR: 9516; common, oak savannas and oak woodlands.

Quercus grisea Liebm. Gray oak; tree. SR: 8344, 8346; uncommon, a few trees just east of the Santa Cruz River appear to be this species.

Quercus oblongifolia Torr. Mexican blue oak, *encino azul*, tree. SC: 8775; occasional, north-facing slopes, canyons.

Fouquieriaceae

Fouquieria splendens Engelm. Coach whip, *ocotillo*; shrub. SC: uncommon, rocky slopes.

Fumariaceae

Corydalis curvisiliqua Engelm. ssp. *occidentalis* (Engelm. ex A. Gray) W.A. Weber [*C. aurea* Willd. ssp. *occidentalis* (Engelm. ex A. Gray) G.B. Ownbey]. Golden corydalis; winter annual. SC: 8869; common, rocky slopes, canyons. SR: 8951; occasional, Parker Canyon.

Garryaceae

Garrya wrightii Torr. Silk tassel; large shrub. SC: 9545; uncommon, canyons.

Gentianaceae

Centaurium calycosum (Buckley) Fernald. Buckley's centaury, annual. SC: 9212; uncommon along streams.

Centaurium nudicaule (Engelm.) B. L. Robinson. Annual. SC: 9230, 9295; uncommon along streams.

Geraniaceae

**Erodium cicutarium* (L.) L'Her. ex Ait. ssp. *cutarium*. Filaree, *alfilaria*, *afilerillo*; winter annual. SC: 9134; occasional, mostly in mesquite grasslands. SR: 9050; uncommon, disturbed areas.

Erodium texanum A. Gray. Heron bill; winter annual. SC: 9072; uncommon, canyons and mesquite grasslands.

Grossulariaceae

Ribes aureum Pursh var. *aureum*. Golden current, shrub. SR: 9159; rare, Sharp Spring, Santa Cruz River bottom.

Haloragaceae

Myriophyllum cf. *sibiricum* Komarov [*M. exalbescens* Fern.]. Water milfoil; submerged aquatic perennial. SR: 9247; rare, Santa Cruz River bottom; not found in flower.

Hydrangeaceae

Fendlera wrightii (A. Gray) Heller [*F. rupicola* A. Gray var. *wrightii* A. Gray]. Large shrub. SC: 8407, 8836; uncommon, north-facing slopes, canyons.

Philadelphus microphyllus A. Gray. Mock orange, shrub. SC: 9218, 9357; rare, north-facing slope in Fresno Canyon. An atypically low-elevation record for this species.

Hydrophyllaceae

Eucrypta micrantha (Torr.) Heller. Winter annual. SC: 8829, 8850, 8853; common, canyons, rocky slopes.

Nama hispidum A. Gray. Sand bells, winter annual. SC: 8913; occasional, sandy soils adjacent to streams. SR: 9304; occasional, Parker Canyon.

Phacelia affinis A. Gray. Purple bell phacelia; winter annual. SC: 9062, 9207, 9268; common, mostly below mesquites.

Phacelia arizonica A. Gray. Winter annual. SC: 8856; common, below mesquites, other heavily grazed areas. SR: 8943; abundant, grasslands.

Phacelia bombycina Wooton & Standley. Winter annual. SC: 8905, 9206; occasional, rocky slopes.

Phacelia caerulea Greene. Winter annual. SC: 8911; occasional, grasslands, canyons.

Phacelia distans Benth. Wild heliotrope; winter annual. SC: 9011; locally abundant, rocky slopes.

Phacelia sonoitensis S.P. McLaughlin ined. Winter annual. SC: 9088, 9123, 9206, 9226; uncommon, talus slopes.

Hypericaceae

Hypericum scouleri Hook. ssp. *scouleri* [*H. formosum* Kunth]. Herbaceous perennial. SR: 9577; rare, springs.

Juglandaceae

Juglans major (Torr.) Heller. Arizona walnut, *nogal*; large tree. SC: 9416; occasional, along Sonoita Creek and in the larger canyons. SR: 9454; uncommon, Parker Canyon.

Krameriaceae

Krameria erecta Willd. ex J.A. Schultes [*K. parvifolia* Benth.]. Ratany, *tamichi*; low hemiparasitic shrub. SC: 9227; occasional, rocky slopes. SR: 9380; uncommon, oak savannas.

Krameria lanceolata Torr. Ratany; hemiparasitic herbaceous perennial. SR: 9393; uncommon, grasslands.

Lamiaceae

Hedeoma dentata Torr. Mock pennyroyal; herbaceous perennial. SC: 8511; uncommon, canyons. SR: 8727; uncommon, oak woodland adjacent to Parker Canyon.

Hedeoma oblongifolia (A. Gray) Heller. Mock pennyroyal; herbaceous perennial. SC: 9584; uncommon, canyons.

**Lamium amplexicaule* L. Dead nettle; winter annual. SC: 8910; uncommon, mostly along Sonoita Creek.

**Marrubium vulgare* L. Common horehound, *marrubio*; herbaceous perennial. SR: 8326; occasional, grasslands, roadsides; said to persist around abandoned homesteads.

Monarda citriodora Cerv. ex Lag. ssp. *austromontana* (Epling) Scora [*M. austromontana* Epling]. Bee balm, horsemint, *orégano*; her-

baceous perennial. SR: 8238; occasional, grasslands.

Prunella vulgaris L. ssp. *lanceolatus* (W. Bart.) Hultén. Self-heal; herbaceous perennial. SR: 9522; rare, wet ground.

Salvia parryi A. Gray. Sage; low shrub. SC: 8683, 9270; uncommon, canyons.

Salvia subincisa Benth. Summer annual. SC: 8398, 8451; occasional, canyons and uplands. SR: 8250; occasional, grassland.

Stachys coccinea Ortega. Texas betony; herbaceous perennial. SC: 8872; locally common in canyons.

Trichostema arizonicum A. Gray. Blue curls; herbaceous perennial. SC: 8680, 9546; rare, canyons.

Linaceae

Linum puberulum (Engelm.) Heller. Plains flax; annual. SC: 9140, 9278; uncommon, uplands. SR: 8317; uncommon, grasslands.

Loasaceae

Mentzelia albicaulis (Douglas ex Hook.) Douglas ex Torr. & A. Gray. Small flowered blazing star; winter annual. SC: 8847, 8857; occasional, rocky slopes. SR: 9098; occasional, Parker Canyon.

Mentzelia isolata H.S. Gentry [*M. asperula* Wooton & Standley *sensu* Kearney and Peebles (1960)]. Blazing star; summer annual. SC: 8368, 8404; occasional, rocky slopes.

Mentzelia multiflora (Nutt.) A. Gray. Adonis blazing star, *yerba pegajosa*; biennial or herbaceous perennial. SC: 8690; occasional, sandy soils adjacent to Sonoita Creek. SR: 9373; occasional, grasslands, roadsides.

Lythraceae

Lythrum californicum Torr. & A. Gray. Loosestrife, *yerba del cancer*; herbaceous perennial. SR: 8277; common, springs.

Rotala ramosior (L.) Koehne. Toothe cup; summer annual. SC: 9674; rare, wet soil of canyon bottom.

Malpighiaceae

Aspicarpa hirtella Rich. Herbaceous perennial. SR: 9594; uncommon, oak savannas, grasslands.

Janusia gracilis A. Gray. Twining shrub. SC: 8516; rare, ridgetops.

Malvaceae

Abutilon incanum (Link) Sweet. Indian mallow,

- pelotazo*; small shrub. SC: 8844; uncommon, rocky slopes.
- Abutilon mollicomum* (Willd.) Sweet [*A. sonorae* A. Gray]. Tall herbaceous perennial. SC: 8447; uncommon, canyons.
- Abutilon parvulum* A. Gray. Small-leaved abutilon; herbaceous perennial. SC: 9556; rare, canyons.
- Anoda abutiloides* A. Gray. Tall herbaceous perennial. SC: 8386, 8442, 8753; occasional, rocky slopes and canyons.
- Anoda cristata* (L.) Schlecht. Spurred anoda, *quesito*; summer annual. SC: 8462, 8662; occasional, mostly in canyons. SR: 8566; occasional, grasslands.
- Gossypium thurberi* Todaro. Desert cotton, shrub. SC: 8414; locally common, canyons, slopes, ridgetops.
- Herissantia crispa* (L.) Brizicky [*Gayoides crispum* (L.) Small]. Herbaceous perennial. SC: 8411, 8517; uncommon, rocky slopes and ridgetops.
- Hibiscus biceptus* S. Watson. Rose mallow; herbaceous perennial. SC: 8424; uncommon, rocky slopes.
- **Malva parviflora* L. Cheese weed; winter annual. SR: 9051; uncommon, disturbed areas.
- Rhynchosida physocalyx* (A. Gray) Fryxell [*Sida physocalyx* A. Gray]. Herbaceous perennial. SC: 8486; uncommon, canyons. SR: 8589; uncommon, Parker Canyon.
- Sida abutifolia* P. Mill. [*S. procumbens* Sw.]. Prostrate herbaceous perennial. SC: 8546; occasional, grasslands. SR: 8551; occasional, grasslands.
- Sida neomexicana* A. Gray. Herbaceous perennial. SR: 8580; occasional, grasslands.
- Sida spinosa* L. Prickly mallow; summer annual. SR: 8336, 8568; occasional, grasslands.
- Sphaeralcea angustifolia* (Cav.) G. Don var. *cuspidata* (A. Gray) Kearney. Narrow-leaved globe mallow; herbaceous perennial. SR: 8552; occasional, mostly below oaks.
- Sphaeralcea fendleri* A. Gray var. *fendleri*. Globe mallow; robust herbaceous perennial. SR: 9687; uncommon, Santa Cruz River floodplain.
- Sphaeralcea laxa* Wooton & Standley. Caliche globe mallow; herbaceous perennial. SC: 8811; occasional, rocky slopes.

Menispermaceae

- Cocculus diversifolius* DC. Snail seed, *correhuela*; woody vine. SC: 9418; uncommon, canyons, rocky slopes.

Molluginaceae

- **Mollugo verticillata* L. Indian chickweed; annual. SC: 8413; uncommon, rocky slopes. SR: 8288; common, grasslands.

Moraceae

- **Morus alba* L. Mulberry, *mora*. Tree. SR: rare, a single plant persisting near ranch buildings.
- Morus microphylla* Buckley. Texas mulberry, *mora*; small tree. SC: 9141; occasional, canyons and rocky slopes.

Nyctaginaceae

- Allionia incarnata* L. Trailing four o'clock, windmills; trailing herbaceous perennial. SC: 8455, 9410; common, canyons, grasslands.
- Boerhavia coccinea* P. Mill. Red spiderling; herbaceous perennial. SC: 8363; common, washes, grasslands. SR: 8301; occasional, grasslands, disturbed areas.
- Boerhavia erecta* L. Summer annual. SC: 8397, 8510; uncommon, canyons and uplands. SR: 8592; occasional, Parker Canyon.
- Boerhavia intermedia* M.E. Jones. Five-winged ringstem; summer annual. SC: 8514; occasional, mesquite grasslands.
- Boerhavia megaptera* Standley. Summer annual. SC: 8815; rare, grasslands.
- Boerhavia purpurascens* A. Gray. Purple spiderling; summer annual. SC: 8522; occasional, rocky slopes. SR: 8715; uncommon, Parker Canyon.
- Boerhavia scandens* L. [*Commicarpus scandens* (L.) Standley]. Herbaceous perennial. SC: 8354; common, below trees and shrubs in canyons.
- Boerhavia spicata* Choisy. Summer annual. SC: 8519; occasional, sandy soil of canyon bottom. SR: 8714, 9715; uncommon, Parker Canyon.
- Mirabilis coccinea* (Torr.) Benth. & Hook. f. [*Oxybaphus coccineus* Torr.]. Four o'clock, herbaceous perennial. SC: 9354; rare, Fresno Canyon. SR: 8728B; 9379; uncommon, grasslands.
- Mirabilis linearis* (Pursh) Heimerl [*Oxybaphus linearis* (Pursh) B. L. Robinson]. Herbaceous perennial. SR: 8581, 8709; uncommon, grasslands.
- Mirabilis longiflora* L. var. *wrightiana* (A. Gray) ex

Britton & Kearney) Kearney & Peebles. Sweet four o'clock, *maravilla*; herbaceous perennial. SC: 9505; rare, north-facing slopes. SR: 8730, 9620; uncommon, oak savannas.

Oleaceae

Fraxinus velutina Torr. Velvet ash, *fresno*; tree. SC: 8399; common along Sonoita Creek and in larger canyons. SR: 8735; uncommon, Parker Canyon.

Menodora scabra A. Gray. Small shrub. SC: 8675, 9138, 9324; locally common, canyons.

Onagraceae

Camissonia californica (Nutt. ex Torr. & A. Gray) Raven [*Oenothera leptocarpa* Greene]. Winter annual. SC: 9009, 9122; occasional, canyons and rocky slopes.

Camissonia chamaenerioides (A. Gray) Raven [*Oenothera chamaenerioides* A. Gray]. Winter annual. SC: 9065; uncommon, canyons.

Camissonia claviformis (Torr. & Frémont) Raven ssp. *peeblesii* (Munz) Raven [*Oenothera clavaeformis* Torr. & Frémont var. *peeblesii* Munz]. Winter annual. SC: 9071; rare, one population seen in canyon of Sonoita Creek.

Epilobium canum (Greene) Raven ssp. *latifolium* (Hook.) Raven [*Zauschneria latifolia* (Hook.) Greene var. *arizonica* (Davidson) Hilend]. Hummingbird trumpet; herbaceous perennial. SC: 8750; occasional, canyon bottom.

Epilobium ciliatum Raf. [*E. adenocaulon* Hausskn.]. Willow weed; herbaceous perennial. SR: 8274; common, springs.

Gaura hexandra Ortega ssp. *gracilis* (Wooton & Standley) Raven & Gregory [*G. gracilis* Wooton & Standley]. Herbaceous perennial. SC: 8740; occasional, canyons. SR: 8260, 9481; common, low areas.

Gaura mollis James [*G. parviflora* Douglas ex Lehm.]. Lizard tail, velvet leaf gaura; tall herbaceous perennial. SC: 8654; occasional, mostly along Sonoita Creek. SR: 8263; common, Sharp Spring, low areas, roadsides.

Oenothera albicaulis Pursh. Evening primrose; winter annual. SR: 9239, 9477, 9514; locally common, grasslands.

Oenothera cespitosa Nutt. ssp. *marginata* (Nutt. ex Hook. & Arn.) Munz. Evening primrose; herbaceous perennial. SC: 9117; rare, canyons. SR: 9091; occasional, grasslands.

Oenothera primiveris A. Gray ssp. *primiveris*. Yellow desert primrose; herbaceous perennial. SC: 8834, 8918; common, grasslands. SR: 8940; common, south-facing slopes.

Oenothera pubescens Willd. ex Spreng [*O. laciniata* Hill ssp. *pubescens*]. Evening primrose; annual. SR: 9378, 9480, 9518; uncommon, grasslands.

Oenothera rosea L'Her. ex Ait. Sun drops; herbaceous perennial. SC: 8655; uncommon, wet soil along edge of Sonoita Creek. SR: 8278; common, springs.

Orobanchaceae

Orobanche cooperi (A. Gray) Heller ssp. *cooperi* [*O. ludoviciana* Nutt. var. *cooperi* (A. Gray) G. Beck]. Broom rape; holoparasitic herbaceous perennial. SC: 9269, 9328; occasional, grasslands, canyons.

Oxalidaceae

Oxalis albicans Kunth ssp. *albicans*. Wood sorrel, *socoyoli*; herbaceous perennial. SC: 8746; uncommon, mostly along Sonoita Creek. SR: 8325; occasional, grasslands.

Oxalis drummondii A. Gray [*O. amplifolia* (Trel.) Knuth *sensu* Kearney and Peebles (1960)]. Wood sorrel; herbaceous perennial. SC: 9540, 9558; uncommon, gallery forests along Sonoita Creek, canyons. SR: 9524; uncommon, Parker Canyon.

Papaveraceae

Argemone mexicana L. Prickly poppy; annual. SC: 9290; rare, along old railroad right-of-way along Sonoita Creek, possibly introduced.

Argemone pleiakantha Greene ssp. *pleiakantha*. Prickly poppy; annual. SC: 9285; common along Sonoita Creek and in canyons. SR: 9425; common, roadsides, grasslands.

Eschscholzia californica Cham. ssp. *mexicana* (Greene) C. Clark [*E. mexicana* Greene]. Mexican poppy, *amapola del campo*; winter annual. SC: 8833; common, uplands.

Passifloraceae

Passiflora mexicana Juss. Passion flower. Herbaceous perennial vine. SC: uncommon, gallery forest, canyons, not found in flower.

Pedaliaceae

Proboscidea parviflora (Wooton) Wooton & Standley ssp. *parviflora*. Devil's claw, *gatitio*;

summer annual. SC: 8374; occasional, sandy soils adjacent to Sonoita Creek. SR: 8335; common, grasslands.

Phytolaccaceae

Rivina humilis L. Pigeon berry, rouge plant, coralito; herbaceous perennial. SC: 8362; common, canyons.

Plantaginaceae

**Plantago major* L. Common plantain; annual. SC: 8742, 9314; rare, along Sonoita Creek.

Plantago patagonica Jacq. [*P. purshii* Roemer & Schultes]. Plantain; winter annual. SC: 8921; abundant, uplands. SR: 9092; abundant, grasslands.

Plantago virginica L. Pale-seeded plantain; winter annual. SC: 9225, 9231; uncommon, mostly along drainages in wet soil. SR: 9244; locally common, sacaton stands. Widespread in the United States and probably native in Arizona.

Platanaceae

Platanus wrightii S. Watson. Arizona sycamore, aliso; tree. SC: rare, present as a few saplings along Sonoita Creek.

Plumbaginaceae

Plumbago scandens L. Leadwort, *hierba de alacrán*, *pitillo*; herbaceous perennial. SC: 8408, 8748; uncommon, canyons, rocky slopes.

Polemoniaceae

Eriastrum diffusum (A. Gray) Mason. Winter annual. SC: 9125, 9143; uncommon, mesquite grasslands. SR: 9240; occasional, grasslands.

Gilia flavocincta A. Nelson ssp. *australis* (A. & V. Grant) A. Day & V. Grant. Winter annual. SC: 8860, 9061; common; gallery forests, canyons, and uplands. SR: 8942; common, grasslands.

Gilia mexicana A. & V. Grant. Winter annual. SC: 9085; uncommon, mostly ridgetops. SR: 9108; common, grasslands.

Ipomopsis macombii (Torr. ex A. Gray) V. Grant [*Gilia maccombii* Torr.]. Herbaceous perennial. SC: 8527. Herbaceous; uncommon, canyons. SR: 8334; uncommon, grasslands.

Linanthus aureus (Nutt.) Greene ssp. *aureus*. Winter annual. SC: 9089; rare, mesquite grasslands.

Linanthus bigelovii (A. Gray) Greene. Winter annual. SC: 8861; uncommon, canyons.

Phlox gracilis (Hook.) Greene [*Microsteris gracilis* (Hook.) Greene]. Winter annual. SC: 9214; rare, Fresno Canyon.

Polygalaceae

Polygala alba Nutt. Milkwort; herbaceous perennial. SR: 8560, 8737; uncommon, grasslands.

Polygala barbeyana Chod. [*P. longa* Blake]. Milkwort; herbaceous perennial. SC: 9405; uncommon, canyons, rocky slopes. SR: 9521; uncommon, grasslands.

Polygala obscura Benth. Milkwort; herbaceous perennial. SC: 8749, 9323; uncommon, canyons, rocky slopes. SR: 9512; uncommon, grasslands.

Polygonaceae

Eriogonum abertianum Torr. var. *abertianum*. Wild buckwheat; annual. SC: 8384; common, all terrestrial habitats. SR: 8330, 8331; occasional, grasslands.

Eriogonum polycladon Benth. Sorrel buckwheat; summer annual. SC: 8518; occasional, sandy soils adjacent to Sonoita Creek, other disturbed areas. SR: 8697; occasional, grasslands.

Eriogonum wrightii Torr. ex Benth. var. *wrightii*. Wright buckwheat; low shrub. SC: 9729; occasional, canyons, rocky slopes. SR: 8779; common, grasslands.

**Polygonum aviculare* L. Prostrate knotweed, *chilillo*; herbaceous perennial. SR: 8342; locally abundant, tanks.

**Polygonum lapathifolium* L. Willow smartweed, *chilillo*; herbaceous perennial. SR: 8266; locally abundant, cattle tanks, Santa Cruz River bottom.

Polygonum pensylvanica L. Pinkweed, *chilillo*; herbaceous perennial. SR: 8242; locally abundant, low areas, cattle tanks.

Polygonum punctatum Ell. var. *confertiflorum* (Meisn.) Fassett. Water smartweed, *chilillo*; herbaceous perennial. SC: 8497, 8653; occasional, stream edges.

**Rumex crispus* L. Curley dock; herbaceous perennial. SR: 8780, 9427; occasional, springs.

Rumex hymenosepalus Torr. Wild rhubarb, *cañaigre*; herbaceous perennial. SC: uncommon, gallery forest along Sonoita Creek.

Rumex violescens Rech. f. Herbaceous perennial. SC: 9318; uncommon, edge of Sonoita Creek.

Portulacaceae

Calandrinia ciliata (Ruiz & Pavón) DC. Red maids; winter annual. SC: 8854; common, canyons, grasslands. SR: 8938; common, low areas, roadsides.

Cistanthe parryi (A. Gray) Hershkovitz var. *arizonica* (J. T. Howell) Kartesz & Gandhi [*Calyptridium parryi* A. Gray]. Winter annual. SC: 8928; uncommon, grasslands.

Portulaca suffrutescens Engelm. Purslane; herbaceous perennial. SC: 8420; common, mesquite grasslands, ridgetops. SR: 8567; uncommon, grasslands.

Portulaca umbraticola Kunth ssp. *coronata* (Small) Matthews & Ketron [*P. coronata* Small]. Purslane; summer annual. SC: 8371; common, uplands. SR: 8286, 8570; uncommon, uplands.

Talinum aurantiacum Engelm. Flame flower; herbaceous perennial. SC: occasional, grasslands. SR: 8273; occasional, grasslands.

Talinum paniculatum (Jacq.) Gaertn. Pink baby breath, *rama del sapo*; herbaceous perennial. SC: 8353; common, canyons.

Primulaceae

**Anagallis arvensis* L. Pimpernel, *yerba de pajaró*; annual. SR: 9385; uncommon, disturbed areas.

Androsace occidentalis Pursh. Rock jasmine; winter annual. SC: 8827; common, canyons, uplands. SR: 8936, 8950; common, low areas, sacaton flats.

Samolus vagans Greene. Water pimpernel; herbaceous perennial. SC: 8492; rare, wet soil along stream, Fresno Canyon.

Ranunculaceae

Anemone tuberosa Rydberg var. *tuberosa*. Desert windflower; herbaceous perennial. SC: 8825; occasional, rocky slopes.

Clematis drummondii Torr. & A. Gray. Texas virgin bower, *barbas de chivito*; woody vine. SC: 9403; uncommon, gallery forest along Sonoita Creek.

Delphinium scaposum Greene. Barestem larkspur; herbaceous perennial. SC: 9066; locally common, uplands.

Delphinium wootonii Rydberg [*D. virescens* Nutt. ssp. *wootonii* (Rydberg) Ewan]. Larkspur; herbaceous perennial. SR: 9351; rare, grasslands.

Myosurus cupulatus S. Watson. Mousetail; winter

annual. SC: 8862, 9010, 9023; abundant, wet soil of canyon bottom, north-facing slopes. SR: 8934, 9056; abundant, low areas, sacaton flats.

Myosurus minimus L. Mousetail; winter annual. SR: 9254, 9350; uncommon, springs.

Ranunculus hydrocharoides A. Gray var. *hydrocharoides*. Buttercup, herbaceous perennial. SR: 9259; locally common, springs.

Ranunculus macranthus Scheele. Large buttercup; herbaceous perennial. SR: 9485; uncommon, springs.

Thalictrum fendleri Engelm. ex A. Gray var. *fendleri*. Meadow rue; herbaceous perennial. SC: 8543; rare, canyons, north-facing slopes.

Rhamnaceae

Ceanothus greggii A. Gray. Buckbrush; shrub. SC: 9544; rare, canyons.

Condalia warnockii M. C. Johnston var. *kearneyana* M. C. Johnston [*Condalia mexicana* Schlecht. *sensu* Kearney & Peebles (1960)]. Mexican bluewood; shrub. SC: 8367; occasional, rocky slopes.

Sageretia wrightii S. Watson. Shrub. SC: 8671; locally common, canyons.

Zizyphus obtusifolia (Hook. ex Torr. & A. Gray) A. Gray var. *canescens* (A. Gray) M. C. Johnston [*Condalia lycioides* (A. Gray) Weberb.]. Gray thorn, *abrojo*, *bachata*; shrub. SC: 9494; occasional, mostly along edge of gallery forest along Sonoita Creek.

Rosaceae

**Malus pumilla* P. Mill. Apple; tree. SR: 9484, a few trees persisting at Sharp Spring near junction with Santa Cruz River floodplain.

Potentilla wheeleri S. Watson [*P. viscidula* Rydb.]. Cinquefoil; herbaceous perennial. SR: 9059; uncommon, north-facing slopes in grasslands, usually found at much higher elevations in southeastern Arizona.

Purshia stansburiana (Torr.) Henrickson [*Cowania mexicana* D. Don var. *stansburiana* (Torr.) Jespon]. Cliffrose, *poño*; large shrub. SC: 9144; occasional, uplands. SR: 8724; uncommon, grasslands.

Rubiaceae

Bouvardia ternifolia (Cav.) Schlecht. [*B. glaberrima* Engelm.]. Shrub. SC: 8435, 9361; rare, north-facing slopes, ridgetops.

Diodia teres Walt. var. *angustata* A. Gray. Rough buttonweed, poor Joe; summer annual. SC: 8767; rare, canyons. SR: 8719; uncommon, grasslands.

Galium aparine L. Goosegrass bedstraw, cleavers; annual vine. SC: 9083; common in canyons, below oaks.

Galium microphyllum A. Gray. Herbaceous perennial. SC: 9329, 9355; uncommon, rock walls.

Galium proliferum A. Gray. Great Basin bedstraw; winter annual. SC: 9114, 9275; uncommon, canyons.

Galium wrightii A. Gray. Herbaceous perennial. SC: 9702; uncommon, rock walls.

Houstonia wrightii A. Gray. Herbaceous perennial. SR: 8316, 9527; uncommon, north-facing slopes in grasslands.

Mitracarpus breviflorus A. Gray. Summer annual. SC: 8754, 9721; uncommon, mostly canyon bottom. SR: 8547; uncommon, grasslands.

Rutaceae

Thamnosma texana (A. Gray) Torr. Turpentine broom; herbaceous perennial. SC: 9067; uncommon, uplands.

Salicaceae

Populus fremontii S. Watson. Fremont cottonwood, *álamo*; large tree. SC: common, gallery forest along Sonoita Creek. SR: common, springs, Santa Cruz River bottom.

Salix bonplandiana Kunth. Bonpland willow, *sauce*, *sauz*; tree. SC: 8651, 8665, 9264; occasional, gallery forest along Sonoita Creek.

Salix exilifolia Dorn [*Salix taxifolia* Kunth]. Yewleaf willow, *taraiz*; small tree. SC: 8669, 9150; rare, Sonoita Creek. SR: 9261; uncommon, springs, Santa Cruz River bottom.

Salix gooddingii Ball. Goodding willow, *sauce*, *sauz*; tree. SC: 8876, 9148; abundant, gallery forest along Sonoita Creek. SR: 9429; common, springs, Santa Cruz River bottom.

Salix lasiolepis Benth. var. *lasiolepis*. Arroyo willow, *sauce*; large shrub. SC: 9064; common, Sonoita Creek. SR: 8949, 9111, 9260, 9262; common, springs, Santa Cruz River bottom.

Sapindaceae

Dodonaea viscosa (L.) Jacq. Hopbush, *jarilla*, *tarchiqui*; shrub. SC: 9734; uncommon, canyons.

Sapindus saponaria L. var. *drummondii* (Hook. & Arn.) L. Benson. Western soapberry, *amolillo*,

cirioni, *jaboncillo*; small tree. SC: 9498; occasional, canyons, rocky slopes. SR: 8596; uncommon, Parker Canyon.

Scrophulariaceae

Castilleja exserta (Heller) Chuang & Heckard ssp. *exserta* [*Orthocarpus purpurascens* Benth.]. Owl's clover; hemiparasitic winter annual. SC: 9208; rare, mesquite grasslands.

Castilleja integra A. Gray. Indian paintbrush; hemiparasitic herbaceous perennial. SR: 9103, 9251; occasional, grasslands.

Castilleja lanata A. Gray ssp. *lanata*. Indian paintbrush; hemiparasitic herbaceous perennial. SC: 8917, 9137; uncommon, canyons.

Castilleja minor (A. Gray) A. Gray ssp. *minor*. Indian paintbrush; hemiparasitic annual. SC: 9030, 9213; rare, canyon bottom.

Maurandella antirrhiniflora (Humb. & Bonpl. ex Willd.) Rothm. [*Maurandya antirrhiflora* Humb. & Bonpl.]. Herbaceous perennial vine. SC: 8677; occasional, canyons, rock walls.

Mecardonia procumbens (P. Mill.) Small [*M. vandellioides* (Kunth) Pennell]. Herbaceous perennial. SC: 8445, 8468; occasional, canyon bottom.

Mimulus floribundus Lindley. Monkey flower, *baisómari*; herbaceous perennial. SC: 9234; rare, Coal Mine Canyon.

Mimulus guttatus DC. Monkey flower, *baisómari*; herbaceous perennial. SC: 8838; common, riparian areas. SR: 9096; common, Santa Cruz River bottom.

Mimulus rubellus A. Gray. Red-stemmed mimulus; winter annual. SC: 8828; locally common, mostly in canyons. SR: 9053; occasional, grasslands.

Nuttallanthus texanus (Scheele) D.A. Sutton [*Linaria texana* Scheele]. Texas toad flax; winter annual. SC: 8864, 8912; common, rocky slopes. SR: 9094; uncommon, grasslands.

Penstemon barbatus (Cav.) Roth ssp. *barbatus*. Scarlet bugler; herbaceous perennial. SC: 9407; rare, Fresno Canyon. SR: 9453; rare, oak woodlands adjacent to Parker Canyon.

Penstemon linarioides A. Gray ssp. *linarioides*. Herbaceous perennial. SR: 9383; occasional, grasslands.

Penstemon parryi (A. Gray) A. Gray. Herbaceous perennial. SC: 9120; occasional, rocky slopes, rock walls.

Penstemon stenophyllus (A. Gray) T. J. Howell. Beard-tongue; herbaceous perennial. SR: 9525, 9568; uncommon, north-facing slopes in oak woodlands and grasslands.

Saiocarpus nuttallianus (Benth. ex A. DC.) D. A. Sutton [*Antirrhinum nuttallianum* Benth.]. Winter annual. SC: 9127; rare, rocky slopes.

Schistophragma intermedia (A. Gray) Pennell. Summer annual. SC: 8480; uncommon, canyons.

Stemodia durantifolia (L.) Sw. Herbaceous perennial. SC: 9404; rare, rock walls, Fresno Canyon. SR: 8734; rare, Parker Canyon.

**Verbascum virgatum* Stokes. Mullein; robust annual. SC: 9476; uncommon, along Sonoita Creek. SR: 8306; uncommon, springs.

**Veronica anagallis-aquatica* L. Water speedwell, herbaceous perennial. SC: 9145; occasional, riparian areas.

Veronica peregrina L. ssp. *xalapensis* (Kunth) Pennell. Speedwell; winter annual. SC: 8859, 8932, 9115; abundant, canyons and upland drainages. SR: 8952, 9346; common, washes.

Simaroubaceae

**Ailanthus altissimus* (P. Mill.) Swingle. Tree of heaven, copal tree; tree. SC: one large colony in the gallery forest of Sonoita Creek. SR: 8272; uncommon, small colony along road east of the Santa Cruz River.

Solanaceae

Calibrachoa parviflora (Juss.) D'Arcy [*Petunia parviflora* Juss.]. Wild petunia; annual. SC: 9149; uncommon, wet soil along Sonoita Creek. SR: 9391; uncommon, margins of cattle tanks.

Chamaesaracha coniodes (Moric. ex Dunal) Britton. Small ground cherry; herbaceous perennial. SC: 9296; uncommon, grasslands. SR: 9441; uncommon, roadsides.

Chamaesaracha coronopus (Dunal) A. Gray. False nightshade; herbaceous perennial. SR: 9367, 9402; uncommon, roadsides.

Datura quercifolia Kunth. Jimson weed, *toloache*; herbaceous perennial. SR: 8577; uncommon, roadsides.

Datura wrightii Regel [*D. meteloides* DC.]. Sacred datura, *toloache*; herbaceous perennial. SC: 9539; occasional, sandy soils adjacent to Sonoita Creek. SR: 8564; occasional, roadsides.

Lycium berlandieri Dunal var. *parviflorum* (A. Gray) Terracc. Wolfberry; shrub. SC: 8814; uncommon, uplands.

Lycium exsertum A. Gray. Wolfberry; shrub. SC: 8817; uncommon, uplands.

Margaranthus solanaceus Schlecht. Netted globe berry; summer annual. SR: 8725; uncommon, oak woodland adjacent to Parker Canyon.

**Nicotiana glauca* Graham. Tree tobacco, *cornetón*, *juan loco*, *palo loco*; robust herbaceous perennial. SC: 8693; occasional along Sonoita Creek.

Nicotiana obtusifolia Martens & Galleotti var. *obtusifolia* [*N. trigonophylla* Dunal var. *trigonophylla*]. Desert tobacco, *tabaquillo*; herbaceous perennial. SC: 8684; occasional, canyon walls.

Physalis acutifolia (Miers) Sandw. [*P. wrightii* A. Gray]. Wright ground cherry, *tomatito*; summer annual. SR: 8265, 8341; occasional, grasslands, springs.

Physalis hederifolia A. Gray var. *hederifolia*. Ivy-leaved ground cherry, *tomatito*; herbaceous perennial. SR: 8588; uncommon, Parker Canyon.

Physalis longifolia Nutt. *Tomatito*; herbaceous perennial. SR: 8299, 8300, 8706; common, springs.

Physalis pubescens L. var. *integrifolia* (Dunal) Waterfall. Hairy ground cherry, *tomate*, *fresadilla*; summer annual. SC: 8390; uncommon, canyons.

Solanum douglasii Dunal. Nightshade; herbaceous perennial. SC: 8491; rare, Fresno Canyon.

Solanum elaeagnifolium Cav. Silverleaf nightshade, *trompillo*; herbaceous perennial. SC: 9363; occasional, mesquite grasslands. SR: 9398; occasional, disturbed areas.

Solanum rostratum Dunal. Buffalo bur; herbaceous perennial. SC: 9633; uncommon, mostly along Sonoita Creek. SR: uncommon, roadsides.

Sterculiaceae

Ayenia filiformis S. Watson [*A. pusilla* L. *sensu* Kearney and Peebles (1960)]. Herbaceous perennial. SC: 8372; occasional, rocky slopes.

Tamaricaceae

**Tamarix ramosissima* Ledeb. [*T. pentandra* Pall. *sensu* Kearney and Peebles (1960)]. Tamarisk,

pino salado; small tree. SR: 9348; rare, Santa Cruz River bottom.

Ulmaceae

Celtis reticulata Torr. Hackberry, *palo blanco*, *cúmaro*; tree. SC: 9557; common, gallery forests and canyons. SR: 8345; uncommon, edge of Santa Cruz River floodplain.

Celtis pallida Torr. Desert hackberry, *garambullo*; shrub. SC: uncommon, rocky slopes.

Urticaceae

Parietaria hespera Hinton var. *hespera* [*P. floridana* Nutt. *sensu* Kearney and Peebles (1960)]. Pellitory, sprawling winter annual. SC: 8830; occasional, rocky slopes.

Verbenaceae

Aloysia wrightii Heller ex Abrams. Wright lippia, *oreganillo*; shrub. SC: 8525; common, rocky slopes.

Bouchea prismatica (L.) Kuntze. Summer annual. SR: 8259; uncommon, low areas.

Glandularia bipinnatifida (Nutt.) Nutt. var. *bipinnatifida*. [*Verbena bipinnatifida* Nutt.]. *Verbena*; herbaceous perennial. SR: 8261, 9101; common, grasslands.

Phyla nodiflora (L.) Greene. Herbaceous perennial. SR: 9443; one colony near ranch buildings, probably introduced.

Verbena carolina L. Herbaceous perennial. SC: 8739; uncommon, canyons.

Verbena gracilis Desf. Herbaceous perennial. SR: 8255; occasional, low areas.

Verbena neomexicana (A. Gray) Small var. *xylopoda* Perry. Hillside vervain; herbaceous perennial. SC: 8478, 8739; occasional, mostly on shaded slopes.

Viscaceae

Phoradendron californicum Nutt. Desert mistletoe; hemiparasitic herbaceous epiphyte. SC: 8849; occasional on *Prosopis*, *Condalia*.

Phoradendron capitellatum Torr. ex Trel. [*P. bolleanum* (Seem.) Eichler var. *capitellatum* (Torr. ex Trel.) Kearney & Peebles]. Mistletoe; hemiparasitic herbaceous epiphyte. SC: 8685, 8852; common on *Juniperus*.

Phoradendron coryae Trel. Mistletoe; hemiparasitic herbaceous epiphyte. SC: 8868; occasional on *Quercus oblongifolia*. SR: 8694; occasional, on *Quercus* spp.

Phoradendron tomentosum (DC.) Engelm. ex A.

Gray [*P. flavescens* (Pursh) Nutt. var. *pubescens* Engelm.]. Mistletoe, *inierto*; hemiparasitic herbaceous epiphyte. SC: 9018; uncommon on *Fraxinus*.

Vitaceae

Vitis arizonica Engelm. Canyon grape, *parra del monte*; woody vine. SC: 9417; occasional, canyons. SR: 9395; locally common, Parker Canyon.

Zygophyllaceae

Kallstroemia grandiflora Torr. ex A. Gray. Mexican poppy, summer poppy, *baiburín*, *mal de ojo*; summer annual. SC: 8361; occasional, canyons and slopes.

Kallstroemia parviflora Norton. Caltrop; summer annual. SR: 8339, 8713; occasional, grasslands, Parker Canyon.

**Tribulus terrestris* L. Caltrop; summer annual. SR: 9591; uncommon, disturbed sites.

MAGNOLIOPHYTA: LILIOPSIDA

Agavaceae

Agave palmeri Engelm. Palmer agave, *lechuguilla*; large leaf succulent. SC: occasional, canyons and rocky slopes. SR: uncommon, grasslands.

Agave parryi Engelm. var. *parryi*. Century plant; large leaf succulent. SR: uncommon, grasslands.

Agave schottii Engelm. var. *schottii*. Shindagger, *amolillo*, *amol*; small leaf succulent. SC: 9413; abundant on uplands.

Yucca elata Engelm. Soap tree yucca, *palmilla*; caulescent leaf succulent. SC: 9408; uncommon, canyons. SR: rare, a single individual observed in grassland west of ranch house.

Yucca schottii Engelm. Mountain yucca; caulescent leaf succulent. SC: uncommon, north-facing slope, Coal Mine Canyon. SR: rare, a single individual observed with oaks east of Santa Cruz River.

Yucca thornberi McKelvey. Banana yucca, *dátil*; acaulescent or short-caulescent leaf succulent. SC: abundant, uplands. Kartesz (1999) treats this as a variety of *Yucca baccata*; the latter taxon has strongly glaucous foliage, thick leaf fibers, and tends to form dense colonies of acaulescent rosettes. The plants of southern Arizona have green foliage, thinner fibers, and are often caulescent.

Alismataceae

Sagittaria longiloba Engelm. ex J. G. Sm. Arrowhead; emergent aquatic perennial. SC: 6488, *J. Kaiser 1108* (ARIZ); collected four times from a cattle tank adjacent to Santa Cruz River, formerly "plentiful"; last collected in 1991.

Bromeliaceae

Tillandsia recurvata (L.) L. Ball moss, *gallitos*; epiphytic leaf succulent. SC: 8678; locally abundant, found mostly on *Juniperus coahuilensis* in narrow canyons.

Commelinaceae

Commelina dianthifolia Delile. Day flower, *lágrima de Maria*; herbaceous perennial. SC: 8417; uncommon, canyons and rocky slopes. SR: 8314; common, grasslands.

Commelina erecta L. var. *angustifolia* (Michx.) Fern. Day flower, *yerba del pollo*; herbaceous perennial. SC: 8355; uncommon, canyons and rocky slopes. SR: 9622; uncommon, Parker Canyon.

Tradescantia pinetorum Greene. Spiderwort; herbaceous perennial. SR: 9565; rare, grasslands.

Cyperaceae

Carex praegracilis W. Boott. Sedge, herbaceous perennial. SR: 9248, 9253, 9316, 9463; abundant, springs. San Rafael Valley collections are difficult to distinguish from *C. chihuahuensis* Mackenzie.

Cyperus dipsaceus Liebamann [*C. wrightii* Britton]. Flat sedge; herbaceous perennial. SC: 8405; uncommon, north-facing slopes below oaks.

Cyperus esculentus L. Yellow nutsedge; herbaceous perennial. SC: 9672; uncommon, canyons. SR: 9593, 9598, 9611A; occasional, grasslands, roadsides.

Cyperus flavicomis Michx. [*C. albomarginatus* Mart. & Schrad.]. Flat sedge; herbaceous perennial. SC: 8467, 8539, 9647; common along stream in Fresno Canyon.

Cyperus mutisii (Kunth) Griseb. Flat sedge; herbaceous perennial. SC: 9708; rare, Fresno Canyon.

Cyperus niger Ruiz & Pavón. Flag sedge; herbaceous perennial. SC: 8776; uncommon, Fresno Canyon. SR: 8324, 8789, 9599; common, Santa Cruz River bottom.

Cyperus odoratus L. Flat sedge; herbaceous perennial. SC: 8495, 9668, 9684; common in wet

soil along Sonoita Creek. SR: 9668; common, Santa Cruz River bottom.

Cyperus pallidicolor (Kukenthal) G. Tucker [*C. flavus* (Vahl) Nees, in part]. Flat sedge; herbaceous perennial. SC: 8438; rare, below oaks.

Cyperus sphaerolepis Boeckl. [*C. rusbyi* Britt.]. Flat sedge; herbaceous perennial. SR: 8508; occasional, oak savannas.

Cyperus squarrosus L. [*C. aristatus* Rottb.]. Flat sedge; annual. SC: 9497, 9640; uncommon, moist soil of canyon bottom.

Eleocharis bella (Piper) Svenson. Spike rush; summer annual. SR: 9575; occasional, Santa Cruz River bottom.

Eleocharis montevidensis Kunth. Spike rush; herbaceous perennial. SC: 9320; abundant along streams. SR: 9431; abundant, springs, Santa Cruz River bottom.

Eleocharis palustris (L.) Roemer & J.A. Schultes [*E. macrostachya* Britton *sensu* Kearney & Peebles (1960), in part]. Spike rush, herbaceous perennial. SC: 9293; occasional, mostly in canyons. SR: 9399; abundant, springs, Santa Cruz River bottom.

Fimbristylis annua (All.) Roemer & J.A. Schultes [*F. baldwiniana* (Schultes) Torr.]. Summer annual. SC: 8539; uncommon, canyon bottom.

Lipocarpa micrantha (Vahl) G. Tucker [*Hemicarpha micrantha* (Vahl) Pax]. Summer annual. SC: 9675; uncommon, canyon bottom.

Schoenoplectus acutus (Muhl. ex Bigelow) A. & D. Löve ssp. *occidentalis* (S. Watson) S. G. Sm. [*Scirpus acutus* Muhl.]. Bullrush; herbaceous perennial. SR: 9461; uncommon, springs.

Schoenoplectus americanus (Pers.) Volk. ex Schinz & R. Keller [*Scirpus americanus* Pers.]. Bullrush; herbaceous perennial. SR: 9347; uncommon, Santa Cruz River bottom.

Iridaceae

Sisyrinchium demissum Greene. Blue eye grass; herbaceous perennial. SR: 9316; common, springs.

JUNCACEAE

Juncus bufonius L. Toad rush; annual. SC: 9113, 9406; common, moist soils of canyon bottom.

Juncus interior Wieg. Rush; herbaceous perennial. SC: 9236, 9294; uncommon, along streams.

Juncus mexicanus Willd. ex J.A. & J. H. Schultes. Rush; herbaceous perennial. SR: 9325, 9388,

9430, 9433; abundant, springs, Santa Cruz River bottom.

Juncus saximontanus A. Nelson. Rush; herbaceous perennial. SC: 8493, 9210; uncommon, along streams. SR: 9315, 9438, 9464, 9487; common, springs, Santa Cruz River bottom.

Juncus torreyi Coville. Rush; herbaceous perennial. SR: 8284, 9435; common, springs, Santa Cruz River bottom.

Lemnaceae

Lemna gibba L. Windbags, duckweed; small floating aquatic. SC: rare, Fresno Canyon. SR: 8313; occasional, springs. Usually found as a minor component in mixed colonies with *L. minor*.

Lemna minor L. Water lentil, duckweed; small floating aquatic. SC: 8499; locally abundant in pools of canyons. SR: 8312; common, springs.

Liliaceae

Allium kunthii G. Don. Wild onion; herbaceous perennial. SC: 9644; rare, Coal Mine Canyon.

Calochortus ambiguus (M.E. Jones) Ownbey. Mariposa lily; herbaceous perennial. SC: 9282; locally abundant, Fresno Canyon.

Calochortus kennedyi Porter var. *kennedyi*. Desert mariposa; herbaceous perennial. SC: 9124; occasional, uplands. SR: 9241; locally common, grasslands.

Dichelostemma capitatum (Benth.) Wood ssp. *pauciflorum* (Torr.) G. Keator [*D. pulchellum* (Salisb.) Heller]. Bluedicks; herbaceous perennial. SC: 8929; common, uplands. SR: 9106; common, grasslands.

Echeandia flavescens (J.A. & H.H. Schultes) Cruden [*Anthericum torreyi* Baker]. Crag lily; herbaceous perennial. SR: 9528, 9566; uncommon, grasslands.

Milla biflora Cav. Mexican Star, herbaceous perennial. SC: rare, included based on a photo by R. Gagnon. SR: 9631; rare, grasslands.

Nothoscordum texanum M.E. Jones. Herbaceous perennial. SC: 8440, 9235; uncommon, mostly in seeps in Coal Mine Canyon.

Nolinaceae

Dasyllirion wheeleri S. Watson. Desert spoon, sotol; leaf rosette shrub. SC: common, rocky slopes.

Nolina microcarpa S. Watson. Beargrass, sacahuista, palmilla; leaf rosette shrub. SC:

common, rocky slopes, grasslands. SR: locally abundant, grasslands and oak woodlands.

Poaceae

Agrostis exarata Trinius. Spike bent; herbaceous perennial. SR: 9439; uncommon, Santa Cruz River bottom.

Alopecurus carolinianus Walt. Fox tail; summer annual. SR: 9255; uncommon, springs.

Aristida adscencionis L. Six weeks three-awn; summer annual. SC: 8426, 9229; common, uplands. SR: 9588; occasional, grasslands, roadsides.

Aristida divaricata Humb. & Bonpl. ex Willd. Three-awn; herbaceous perennial. SR: 9698; occasional, grasslands.

Aristida purpurea Nutt. var. *fendleriana* (Steud.) Vasey [*A. fendleriana* Steud.]. Purple three-awn; herbaceous perennial. SR: 9374; occasional, grasslands.

Aristida purpurea Nutt. var. *neallyi* (Vasey) Allred [*A. glauca* (Nees) Walp.]. SC: 9321, 9543; uncommon, uplands.

Aristida purpurea Nutt. var. *wrightii* (Nash) Allred [*A. wrightii* Nash]. Purple three-awn; herbaceous perennial. SC: 8573; occasional, grasslands. SR: 9605; common, grasslands.

Aristida ternipes Cav. var. *gentilis* (Henr.) Allred [*A. hamulosa* Henr.]. Spider grass; herbaceous perennial. SC: 8428; common, canyons. SR: 8554; common, grasslands.

Aristida ternipes Cav. var. *ternipes*. SC: 8505, 8520. Herbaceous perennial; common, canyons.

**Avena fatua* L. Wild oats; winter annual. SC: 9238; rare, canyons. SR: 9264; uncommon, disturbed areas.

**Avena sativa* L. Oats; winter annual. SR: 9152; uncommon, disturbed areas.

Bothriochloa barbinodis (Lag.) Herter [*Andropogon barbinodis* Lag.]. Cane beardstem; herbaceous perennial. SC: 8430; abundant, uplands. SR: 8329; abundant, grasslands.

Bothriochloa laguroides (DC.) Herter ssp. *torreyana* (Steud.) Allred & Gould [*Andropogon saccharoides* Swartz]. Herbaceous perennial. SR: 9655; uncommon, Sharp Spring drainage.

Bouteloua aristidoides (Kunth) Griseb. var. *aristidoides*. Six-weeks needle grama; summer annual. SC: 8434; occasional, canyons and uplands. SR: 8572; common, grasslands

- Bouteloua chondrosioides* (Kunth) Benth. ex S. Watson. Spruce-top grama; herbaceous perennial. SC: 8433, 8502; common, uplands. SR: 8708; common, grasslands.
- Bouteloua curtispindula* (Michx.) Torr. Side oats grama; herbaceous perennial. SC: 8402; abundant, canyons and uplands. SR: 8550; abundant, grasslands, woodlands.
- Bouteloua eludens* Griffiths. Herbaceous perennial. SR: 9627; rare, oak woodland adjacent to Parker Canyon.
- Bouteloua eriopoda* (Torr.) Torr. Black grama; herbaceous perennial. SC: 9637; uncommon, uplands. SR: 9604; uncommon, grasslands.
- Bouteloua gracilis* (Willd. ex Kunth) Lag. ex Griffiths. Blue grama; herbaceous perennial. SR: 9576; abundant, grasslands.
- Bouteloua hirsuta* Lag. var. *hirsuta*. Hairy grama; herbaceous perennial. SC: 8429; common, uplands. SR: 8574; common, grasslands.
- Bouteloua radicata* (E. Fourn.) Griffiths. Herbaceous perennial. SC: 8761; occasional, uplands. SR: 9626; uncommon, oak woodland adjacent to Parker Canyon.
- Bouteloua repens* (Kunth) Scribn. & Merr. [*B. filiformis* (Fourn.) Griffiths]. Slender grama; herbaceous perennial. SC: 8427; common, uplands.
- Bouteloua rothrockii* Vasey. Rothrock grama; herbaceous perennial. SC: 8528A; occasional, mesquite grasslands. SR: 9601; occasional, low areas, sacaton flats.
- Bromus anomalus* Rupr. ex E. Fourn. Brome; herbaceous perennial. SR: 9696; rare, Parker Canyon.
- Bromus carinatus* Hook. & Arn. California brome; herbaceous perennial. SC: 9215, 9267; common, gallery forests along Sonoita Creek.
- **Bromus catharticus* Vahl. Brome; annual. SR: 9052, 9158, 9667; common, Santa Cruz River floodplain, disturbed areas.
- **Bromus japonicus* Thunb. ex Murr. Japanese brome; winter annual. SR: 9389; common, Sharp Spring drainage.
- Cenchrus spinifex* Cav. [*C. pauciflorus* Benth.] Sandbur; summer annual. SC: 8667; common, mostly in canyons, disturbed areas. SR: 8576; common, grasslands.
- Chloris virgata* Swartz. Feather fingergrass; summer annual. SC: 8398B; occasional, disturbed areas. SR: 8549; occasional, grasslands, roadsides.
- Cottea pappophoroides* Kunth. Cotta grass; herbaceous perennial. SC: 9679; rare, Fresno Canyon.
- **Cynodon dactylon* (L.) Pers. Bermuda grass; herbaceous perennial. SC: 9284; occasional, mostly along streams. SR: 9563; occasional, roadsides, Santa Cruz River bottom.
- Dasyochloa pulchella* (Kunth) Willd. ex Rydberg [*Tridens pulchellus* (Kunth) Hitchc.]. Fluff grass; herbaceous perennial. SC: 9547, 9648; locally common, uplands.
- Digitaria californica* (Benth.) Henr. [*Trichachne californica* (Benth.) Chase]. Arizona cottontop; herbaceous perennial. SC: 8432; uncommon, uplands. SR: 9609; uncommon, grasslands.
- Digitaria cognata* (J.A. Schultes) Pilger var. *pubiflora* Vasey ex L.H. Dewey [*Leptoloma cognatum* (Schultes) Chase]. Fall witch grass; herbaceous perennial. SC: 9028; uncommon, Coal Mine Canyon.
- **Digitaria sanguinalis* (L.) Scop. Common crabgrass; summer annual. SC: 8660; occasional, wet areas. SR: 9589; occasional, disturbed areas.
- **Echinochloa colona* (L.) Link. Jungle rice; summer annual. SC: 8537; occasional, canyons.
- **Echinochloa crus-galli* (L.) P. Beauv. Barnyard grass; summer annual. SC: 8452, 8487; occasional, along streams. SR: 8269; common, Santa Cruz River bottom, abundant around cattle tanks.
- Elionurus barbiculmis* Hack. Herbaceous perennial. SC: 9710B; rare, shaded slopes.
- Elymus canadensis* L. Wild rye; herbaceous perennial. SR: 9436; common, Santa Cruz River bottom, springs.
- Elymus elymoides* (Raf.) Swezey [*Sitanion hystrix* (Nutt.) J. G. Smith]. Bottlebrush squirrel tail; herbaceous perennial. SC: 9118; occasional, canyons, slopes. SR: 9263; occasional, Sharp Spring drainage.
- Enneapogon desvauxii* Desv. ex Beauv. Spike pappusgrass; summer annual. SC: 8474, 8482; uncommon, rocky slopes. SR: 8711; uncommon, grasslands.
- **Eragrostis cilianensis* (All.) Vign. ex Janchen. Stink grass; annual. SC: 8450; mostly in heavily

- grazed areas. SR: 8246; occasional, disturbed areas.
- **Eragrostis curvula* (Schrad.) Nees var. *conferta* Stapf. Weeping lovegrass; herbaceous perennial. SC: 9277; uncommon, canyons.
- Eragrostis intermedia* Hitchc. Plains lovegrass; herbaceous perennial. SC: 8439; common, uplands. SR: 8548; abundant, grasslands.
- **Eragrostis lehmanniana* Nees. Lehmann lovegrass; herbaceous perennial. SC: 9499; occasional, mostly overgrazed saddles. SR: 9483; locally common, grasslands.
- Eragrostis pectinacea* (Michx.) Nees ex Steud. var. *pectinacea* [*E. diffusa* Buckley]. Summer annual. SC: 8530, 9495; occasional, canyons. SR: 9606, 9612; occasional, grasslands, washes.
- Eriochloa acuminata* (Presl) Kunth var. *acuminata* (Vasey) R.B. Shaw [*E. gracilis* (Fourn.) Hitchc. var. *gracilis* (Vasey) Hitchc.]. Cupgrass; summer annual. SC: 8375; common, gallery forests, canyons.
- Eriochloa acuminata* (Presl) Kunth var. *minor* (Vasey) R.B. Shaw [*E. gracilis* (Fourn.) Hitchc. var. *minor* (Vasey) Hitchc.]. Cupgrass; summer annual. SR: 8247; abundant, grasslands.
- **Festuca arundinacea* Schreber. [*F. elatior* L.]. Meadow fescue; herbaceous perennial. SR: 9299, 9314, 9352; abundant, springs.
- Heteropogon contortus* (L.) Beauv. ex Roemer & J.A. Schultes. Tangle head; herbaceous perennial. SC: 8770; common, rocky slopes.
- Heteropogon melanocarpus* (Ell.) Ell. ex Benth. Sweet tangle head; summer annual. SC: 8396; common, rocky slopes. SR: 8702; occasional, oak savannas.
- Hilaria belangeri* (Steud.) Nash var. *belangeri*. Curly mesquite grass; herbaceous perennial. SC: 8816; locally abundant, grasslands. SR: 9581; occasional, grasslands.
- Hordeum jubatum* L. ssp. *jubatum*. Foxtail; herbaceous perennial. SR: 9308B, 9349; common, springs, low areas.
- **Hordeum murinum* L. ssp. *leporinum* (Link) Arcang. Wild barley; winter annual. SR: 9049; occasional, margins of cattle tanks.
- Hordeum pusillum* Nutt. Little barley; annual. SR: 9308A; uncommon, margins of cattle tanks.
- Leersia oryzoides* (L.) Sw. Rice cutgrass; herbaceous perennial. SR: 8783, 8786; uncommon, Sharp Spring.
- Leptochloa dubia* (Kunth) Nees. Green sprangle-top; herbaceous perennial. SC: 8421; uncommon, rocky slopes. SR: 8707; occasional, grasslands.
- Leptochloa fusca* (L.) Kunth ssp. *fascicularis* (Lam.) N. Snow [*L. fascicularis* (Lam.) A. Gray var. *fascicularis*]. Beaded sprangle-top; summer annual. SR: 8575, 8582; occasional, grasslands, disturbed areas.
- Leptochloa panicea* (Retz.) Ohwi ssp. *brachiata* (Steudl.) N. Snow [*L. filiformis* Lam.]. Summer annual. SC: 8529; common, canyons.
- Leptochloa viscida* (Scribn.) Beal. Summer annual. SC: 9496; occasional, mostly in canyons. SR: 9596; uncommon, washes.
- Lycurus setosus* (Nutt.) C. G. Reeder [*L. phleoides* Kunth sensu Kearney and Peebles (1960), in part]. Wolf-tail; herbaceous perennial. SC: 8425; common, uplands. SR: 9570; abundant, grasslands.
- **Melinis repens* (Willd.) Zizka [*Rhynchelytrum roseum* (Nees) Stapf & C. E. Hubbards ex Bews]. Natal grass; herbaceous perennial. SC: 8813; rare, canyons. SR: 9736; rare, Parker Canyon.
- Muhlenbergia arizonica* Scribn. Herbaceous perennial. SC: 8760, 9078; locally abundant, uplands. SR: 9658; uncommon, grasslands.
- Muhlenbergia asperifolia* (Nees & Meyen ex Trinius) Parodi. Scratchgrass; herbaceous perennial. SR: 9656; locally abundant, Sharp Spring drainage.
- Muhlenbergia emersleyi* Vasey. Bullgrass; herbaceous perennial. SC: 8676, 8762; occasional, mostly north-facing slopes.
- Muhlenbergia fragilis* Swallen. Summer annual. SC: 8448; occasional, canyons and rocky slopes. SR: 8730, 9725; uncommon, oak woodland adjacent to Parker Canyon.
- Muhlenbergia rigens* (Benth.) Hitchc. Deer grass; herbaceous perennial. SC: 8764; abundant, canyon bottom. SR: 9686; occasional, drainages.
- Muhlenbergia tenuifolia* (Kunth) Trinius [*M. monticola* Buckley]. Herbaceous perennial. SC: 9642A, 9676, 9705; occasional, rock walls.
- Panicum bulbosum* Kunth. Bulb panicum; herbaceous perennial. SC: 8378, 8501; uncommon, canyons. SR: 9628; uncommon, oak woodland adjacent to Parker Canyon.

- Panicum hallii* Vasey var. *hallii*. Herbaceous perennial. SR: rare, grasslands.
- Panicum hirticaule* J. Presl. Summer annual. SC: 8391, 8395, 8449; common, canyons and slopes. SR: 8285; common, grasslands.
- Panicum obtusum* Kunth. Vine mesquite; herbaceous perennial. SC: 9549; uncommon, washes. SR: 9578; occasional, grasslands, springs.
- **Paspalum dilatatum* Poir. Dallis grass; herbaceous perennial. SC: 8664; common, streams. SR: 8327; occasional, Sharp Spring.
- Paspalum distichum* L. Knotgrass; herbaceous perennial. SR: 8788; locally common, Santa Cruz River bottom.
- Paspalum setaceum* Michx. [*P. stramineum* Nash]. Herbaceous perennial. SR: 8705, 9595; uncommon, oak savannas.
- Phalaris caroliniana* Walt. Canary grass; annual. SR: 9309, 9428; occasional, low areas.
- **Phalaris minor* Retzius. Littleseed canary grass; annual. SC: 9204; uncommon, canyons.
- Poa bigelovii* Vasey & Scribn. Bigelow's bluegrass; winter annual. SC: 8863; common, canyons, rocky slopes.
- **Poa pratensis* L. ssp. *pratensis*. Kentucky bluegrass; herbaceous perennial. SR: 9256; abundant, Sharp and Heron springs drainages.
- **Polypogon monspeliensis* (L.) Desf. Rabbitfoot grass; annual. SC: 9147; common along streams. SR: 9099, 9372; common, Santa Cruz River bottom.
- **Polypogon viridis* (Gouan) Breistr. [*Agrostis semiverticillata* (Forsk.) C. Christens.]. Water bent; herbaceous perennial. SC: 9331, 9356; uncommon, along streams. SR: 9466; uncommon, Sharp Spring.
- Schizachyrium cirratum* (Hack.) Wooton & Standley [*Andropogon cirratus* Hack.]. Texas bluestem; herbaceous perennial. SR: 9668; locally abundant, grasslands.
- Schizachyrium sanguineum* (Retzius) Altson var. *hirtiflorum* (Nees) Hatch [*Andropogon hirtiflorum* (Nees) Kunth]. Herbaceous perennial. SC: 8545, 9681, 9710A; occasional, canyons, shaded slopes. SR: 8785; occasional, north-facing slopes.
- Setaria grisebachii* E. Fourn. Grisebach bristlegrass; summer annual. SC: 8538; occasional, north-facing slopes. SR: 8792, 9620A; occasional, Parker Canyon.
- Setaria leucopila* (Scribn. & Merr.) K. Schum. [*S. macrostachya* Kunth *sensu* Kearney and Peebles (1960), in part]. Plains bristle grass; herbaceous perennial. SC: 8441, 8528B; occasional, mesquite grasslands.
- **Sorghum halepense* (L.) Pers. Johnson grass; herbaceous perennial. SC: 9652; occasional, mostly along Sonoita Creek. SR: 9561; locally abundant, roadsides, springs, Santa Cruz River floodplain.
- Sphenopholis obtusata* (Michx.) Scribn. Prairie wedge grass; herbaceous perennial. SR: 9460; uncommon, springs.
- Sporobolus contractus* Hitchc. Spike dropseed; herbaceous perennial. SC: 9635; occasional, along Sonoita Creek. SR: 9624; rare, Parker Canyon.
- Sporobolus cryptandrus* (Torr.) A. Gray. Sand dropseed; herbaceous perennial. SR: 9592, 9611B, 9695; uncommon, grasslands, washes.
- Sporobolus wrightii* Munro ex Scribn. Sacaton. Herbaceous perennial. SC: rare, canyons. SR: 9562; abundant on Santa Cruz River floodplain.
- Trachypogon spicatus* (L.) Kuntze [*T. secundus* (J. Presl) Scribn.]. Crinkle-awn; herbaceous perennial. SC: 8536, 8769; occasional, north-facing slopes. SR: 9608, 9664; common, grasslands.
- Urochloa arizonica* (Scribn. & Merr.) O. Morrone & F. Zuloaga [*Panicum arizonicum* Scribn. & Merr.]. Summer annual. SC: 9671; rare, canyons. SR: 8254; occasional, low areas.
- Vulpia microstachys* (Nutt.) Munro var. *pauciflora* (Scribn. ex Beal) Lonard & Gould [*Festuca pacifica* Piper]. Winter annual. SC: 8870; occasional, rocky slopes.
- Vulpia octoflora* (Walt.) Rydb. var. *hirtella* (Piper) Henr. [*Festuca octoflora* Walt. var. *hirtella* Piper]. Six-weeks fescue; winter annual. SC: 8923; occasional, rocky slopes. SR: 9095; occasional, grasslands.
- Vulpia octoflora* (Walt.) Rydb. var. *octoflora*. Six-weeks fescue; winter annual. SC: 9081; common, grasslands, sandy soils along Sonoita Creek.

Pontederiaceae

Heteranthera limosa (Sw.) Willd. Mud plantain;

emergent aquatic perennial. SR: 6489; last collected from pond adjacent to Santa Cruz River in 1991.

Potamogetonaceae

Potamogeton foliosus Raf. Pondweed; submerged aquatic perennial. SR: 9462, 9465; uncommon, Sharp and Heron springs.

Typhaceae

Typha domingensis Pers. Cattail; emergent perennial aquatic. SC: rare, a single small popula-

tion seen along Sonoita Creek. SR: 9574; uncommon, Santa Cruz River bottom.

Zannichelliaceae

Zannichellia palustris L. Horned pondweed, common poolmat; submerged herbaceous aquatic. SC: 9332; rare, found once in pool along Sonoita Creek. SR: 9245; common, springs, Santa Cruz River.

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